

12-03-04

Bob Cooper's

MARCH 15 2004

SatFACTS

MONTHLY



Reporting on "The World" of satellite television in the Pacific and Asia

IN THIS ISSUE

GUAM/23

**USA direct
on C and Ku
is here**

**Putting Zenith
IRDs to work
outside Sky**

Marsh./25

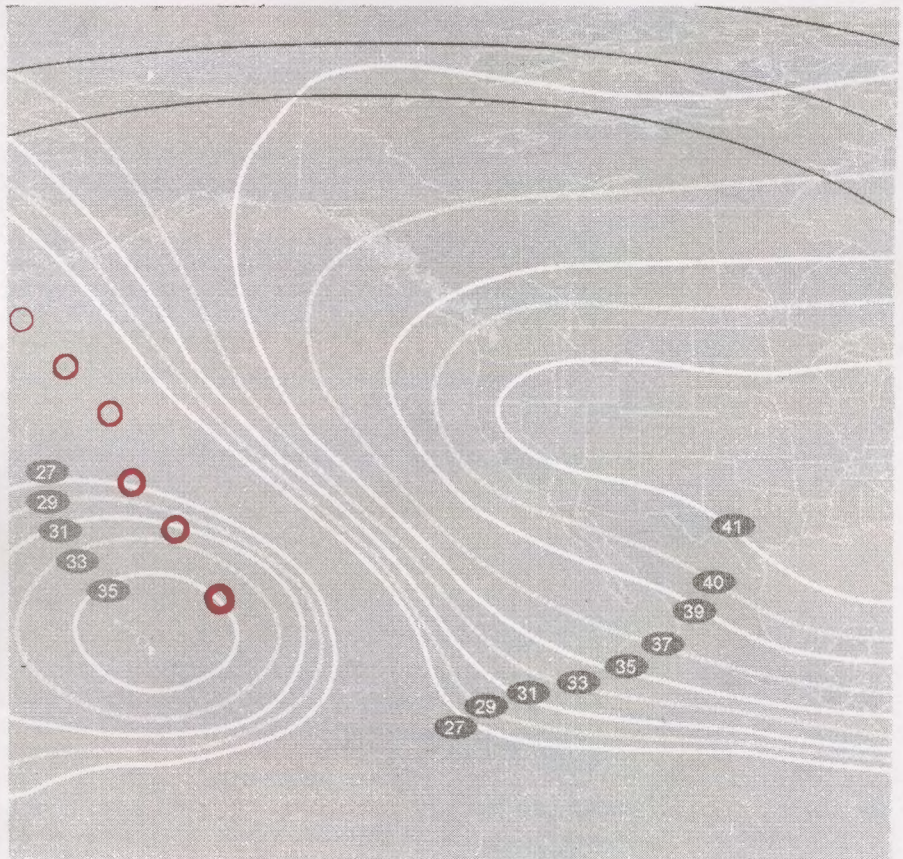
**Two new
Asian satellites
on the way up!**

- ✓ Latest Programmer News
- ✓ Latest Hardware News
- ✓ More C1/B3 changes
- ✓ Observer Reports

Vol. 10 ♦ No. 115

Price Per Copy:

NZ\$10/A\$11/US-Eur\$8



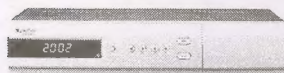
AMC-10/11 SATELLITE

135°/131° W.L. | C-band | North America



Phoenix Technologies

Satellite Equipment & Accessories One Stop Supermarket



Made in Korea

- Digital Audio Output (S/PDIF)
- Dolby Digital
- Wide Screen (16:9) Hot-Key
- S-VHS, CVBS & RGB Video Outputs

HUMAX ACE S Receiver

(Irdeto V2.06 CAM embedded)

\$300

Supernet digital receiver

(Irdeto V2.09 CAM embedded)

\$270

SPACE 5300A CI Receiver

(Two Common Interface Slots)

- Auto PID correction
- C & Ku band input
- PAL/NTSC auto converter
- 5000 channels
- Picture in picture EPG
- DiSEqC1.0/1.2 control
- TV/VCR Scart & RCA output

\$180



CDVB5300A

SPACE 2300 digital receiver

- Auto PID correction
- C & Ku band input
- PAL/NTSC auto converter
- 5000 channels
- Picture in picture EPG
- DiSEqC1.0/1.2 control
- TV/VCR Scart & RCA output

\$140

Phoenix JT3100T Digital Terrestrial Receiver

- Super-Fast Channel Scan
- Electronic Program Guide
- Channel Rename Function
- Software Upgradeable

\$220/each (for one box of 6 unit)

\$200/each (for five boxes of 30 units)

NextWave 3220 FTA digital receiver (Made in Korea)

- C & Ku band input
- PAL/NTSC auto converter
- 5000 channels Picture in picture EPG
- DiSEqC1.0/1.2 control
- TV/VCR Scart & RCA outputs

\$160

NextWave 3220C digital receiver

(Two common interface slots) (Made in Korea)

- C & Ku band input
- High symbol rate >45,000
- PAL/NTSC auto converter
- 5000 channels Picture in picture EPG
- DiSEqC1.0/1.2 control
- TV/VCR Scart & RCA outputs

\$220

Irdeto 2.06B CAM

\$160

65cm offset dish

\$27

11.3 Ku LNBF

\$25

Universal Ku LNBF

\$25

Universal Mount

\$15

RG 6 Dual cable (305m/box)

\$85

Gold Card (10/bag)

\$85

Silver Card (10/bag)

\$135

Satellite finder

\$35

Optus C1 Aurora Kit

Supernet digital receiver

- (Irdeto cam embedded)
- 11.3 GHz/Universal Ku
- LNBF 65cm dish, Mount bracket, 30m RG6 cable
- Aurora card \$95

\$395/set

LBC, ART, Al Jazeera Kit

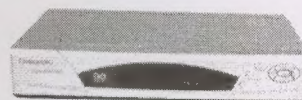
Supernet digital receiver

- (Irdeto cam embedded)
- C-band LNBF
- 2.1m Mesh dish
- 3' Pole
- 30m RG6 cable
- Subscription fee \$30/month*

\$495/set

Free to air kit

- Including dish, LNBF, digital receiver, etc.
- Start from \$3xx



Changhong 1000 Digital Receiver

- Aston 1.05 Cam embedded
- Best Value For Indian & French
- (C-band on Asiasat 3s & Ku band on Intelsat 701)
- C & Ku band input, 2000 Channels,

\$200

Full range of C/Ku band satellite dish - panel & mesh, prime & offset, from 45cm to 4.5m

Full range of C/Ku LNBF - Dual output, one cable solution, C/Ku combination

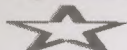
Full range of actuator - From 12" light to 36" heavy duty

DiSEqC 1.2 Positioner & SuperJack EZ2000 Positioner

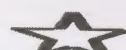
2.4 GHz AV sender and Remote extender

RG6 Cable and Motor cable

Full range of satellite accessories



THIS MONTH'S SPECIALS



SPACE 2300A FTA Digital Receiver \$1400/(2 box, 5units/box)

Phoenix V-Box \$600/(box of 10units)

18" Phoenix Actuator \$360.00/(3 box, 4 units/box)

Irdeto 2.06B CAM \$1400/(box of 10units)

Phoenix 2.3m Mesh dish \$1650/(pallet of 10 sets)

Zinwell LNBF 15K C-band LNBF \$648/(box of 24)

RG 6 Cable \$700/(10 box, 305m/box)

65cm offset dish \$125/(box of 5sets)

Come To Us For Your Best Deals

302 Chestville Rd. Moorabbin VIC 3189

Phone: (03) 9553 3399 Fax: (03) 9553 3393

Major Importer In Australia

Website: www.phoenixstrong.com.au

Email: satellite@phoenixstrong.com.au

SatFACTS MONTHLY

ISSN 1174-0779

is published 12 times each year (on or about the 15th of each month) by Far North Cablevision, Ltd.

This publication is dedicated to the premise that as we are beginning the 21st century, ancient 20th century notions concerning borders and boundaries no longer define a person's horizon. In the air, all around you, are microwave signals carrying messages of entertainment, information and education.

These messages are available to anyone willing to install the appropriate receiving equipment and, where applicable, pay a monthly or annual fee to receive the content of these messages in the privacy of their own home.

Welcome to the 21st century - a world without borders, a world without boundaries.

Editor/Publisher
Robert B. Cooper (ZL4AAA)
Office Manager
Gay V. Cooper (ZL1GG)

Reaching SatFACTS
Tel: 64-9-406-0651
Fax: 64-9-406-1083
Mail: PO Box 330
Mangonui, Far North
New Zealand
Email: skyking@clear.net.nz

Subscription Rates
Within NZ: \$70 p/y
Australia: AV-COMM Pty Ltd, PO
Box 225, Brookvale, N.S.W.
2100
61-2-9939-4377
Elsewhere: US\$75p/y
All copies sent via airmail fast post

The fine print
SatFACTS Copyright 2004 by
Robert B. Cooper; any form of
copying is a violation of our
international copyrights.

our **TENTH** year!

COOP'S COMMENT

A major supplier of satellite equipment quipped to me during early February, "The adult stuff on NSS-6 has come along at just the right time - what with Foxtel and Austar clamping down on grey market cards."

Indeed. A fair trade. Triple-X pornography for thousands of folks watching Foxtel and Austar with gold or fun cards acquired at the local pub; an interesting statement about the attitudes of not only our industry but the folks who stand in line to watch the 'forbidden fruits' of TV. Whatever sells equipment - that's what counts!

Sex is so big in Europe that in the current (March) issue of England's widest read consumer home dish publication I counted 78 advertisements for sex channel cards and equipment. Most were full page advertisements. The only advertising category with more advertisements is CAMs and cards - there is quite literally no channel in Europe (out of more than 3,000!) for which somebody is not offering a grey market card/CAM access. The rule of thumb seems to be, "if it sells, offer it." No shame, no self incrimination. Just sell it.

The legality of offering equipment for uncensored sex is unclear. In ACT and NT, I am told, the state rules differ - in each, it is OK to have "sex videos" which have not been approved by a federal approval group. Certainly the videotape rental business that until now has had an exclusive hold on this end of the video world has done a landfill business in shipping tapes all over Australia using courier and postal delivery. If the local video store in NSW or Victoria or SA or WA 'refuses' to stock the kind of 'adult video' the consumers seem to demand, it is only a toll free call away. Until now.

"Business is great - we can't keep the cards in stock," reports one firm's CEO who is not in ACT or NT but who has worked out a way to offer cards none the less. Cards? CAMs? We are talking about the recent new offerings on NSS-6 Ku (Bluekiss x 2, 11.078H) and Free-X (x2) on 12.729V (a shame they couldn't get together on the same polarity!). And now, as of mid-March, Bluekiss (x 2) on AsiaSat 3S (3669V). In both cases, you acquire a receiver with an embedded CAM that automatically receives the service(s) - but each has its own CAM or card (Bluekiss has 14 month card, Free-X, as we understand it, has a longer term CAM). NSS-6 is widely received with a modest size dish (60cm for many) throughout Australia, hangs just on the horizon for New Zealand (slightly below for most) while AsiaSat 3S and Bluekiss is available in both countries (as well as through much of the Pacific as well).

Whatever sells receivers - and new CAMs and new cards - must be OK - right?

All of this has caught the regulatory folks unprepared, unable to decide exactly how to respond when there suddenly appears in the airwaves programming which the local rules of law prohibit. If you are a dealer in NSW or one of the other Australian states where non-Government agency approved films are illegal, you could (and sooner or later will) get nabbed for selling cards. Or CAMs, and perhaps even receivers if you are foolish enough to put in writing someplace that the receiver or CAM or card you sell is capable of authorising one of these 'adult' services. Now maybe - just maybe - the public's appetite for this level of programming is so huge, that no government agency dares to tip toe into the water to shut it all down. Maybe. But sooner than later one or more vocal religious, public morals or child-molestation protesting groups will figure out what is happening and start making noise in the press, on talk-back radio, and in the newspaper letters section.

"What I do inside my own home is my business - it is none of theirs!" might be a defence for the individual who acquires a card, CAM or receiver. It is not a defence for the business person who makes it possible for that person to acquire this programming by selling them the equipment which is required to make it happen. And that's our concern - that you are so swept up by the sudden demand for a new product that you step over the line and actively sell products that have only one desirable function - accessing triple-X rated adult programming in areas where such programming is clearly illegal.

Adult -TV is available on Foxtel and Austar - a much watered down 'soft porn' that excites only virgins and idiots. And in NZ, Playboy and a couple of 'Spice' channels which I am told are 'soft' but then if you are accustomed to watching TVOne, 2 and 3 - it might be pretty exciting anyhow. Until Canal + switched up to a higher grade of CA, hundreds (thousands?) of folks in eastern Australia purchased the French system hardware and then acquired pirate cards to watch their version of 'hard core' porn. So there is a market for all of this, in any language - just as long as you are not caught selling it. Perhaps one day the regulatory folks will catch up with - and modify the laws to remove the restrictions. For now, it is a very tender area of sales which could land you in jail or a lawsuit if you over extend yourself in business.

In Volume 10 ♦ Number 115

Finding Your Way to America - Direct - p. 6
DGT400 Hold Outs - p. 15; Smart Splitters - p. 15

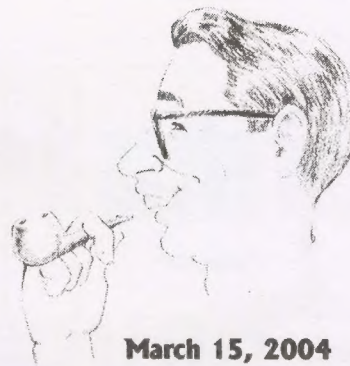
"Unsticking" Zenith IRDs from Sky NZ parameters - p. 15; Blind Search Power Supply Shortcomings - p. 15;
Analogue Threshold Extension - p. 19; Optus C1/B3 updates - p. 20

Departments

Programmer/Programming -p.2; Hardware/Equipment Update -p. 4; C1 Updates -p. 22; SatFACTS Digital Watch -p. 23; With The Observers -p. 27; Apstar 5 - p. 28; At Sign-Off (GlobeCast Rescue) -p. 31

-On the cover-

Searching for "bubbles" and "puddles" from North American satellites (p. 6)



March 15, 2004



The real losers are ...

"Read with interest your article (SF#113) on TVNZ FTA channels and the relationship with Sky Network NZ. Of course the real losers when it comes to change over from terrestrial to satellite feed are the UHF regional TV stations. We have been battling the leading edge of this switch over for several years. When a home becomes a Sky digital (satellite) subscriber, invariably the Sky installer does not plug the terrestrial TV antenna into the STB, nor is the Sky subscriber even told that he/she can continue to view non-satellite terrestrial UHF. This means for every new tune in to Sky, one less potential viewer for already struggling regional stations. It is a pretty sly move on Sky's part - simply leave the terrestrial antenna out of the socket and the viewer has been lost for all time to our station. We routinely carry notices advising that viewers who change over should make their installer aware they still wish to receive us - how effective that is I really do not know! Imagine what the NZ television world might have been like had TVNZ been a tad more proactive and instead of rebroadcasting Deutsche Welle on its 'rugby and Christmas carol channel,' it had put up a stream of assorted regional programming. This would not cost them anything significant and would have been a way to be seen to be 'reflecting regional needs' as required by its charter."

Jim Blackman, Triangle Television, Auckland

TVNZ has huge archives of programming run once and stored for which they hold full broadcasting rights. It is a resource totally unused. If one or two channels of this material were placed on satellite, and regional stations were allowed to contract for its use at reasonable fees, everyone would benefit. If TVNZ kept 2 or 3 minutes out of each half hour of such programming for their own advertising sale, they could actually make money while revitalising the sadly unused archives. And it would give the UHF regional stations a new lease on life plus an

opportunity to become "TVNZ partners."

Blind Searchers "blind"

"In answer to your SF#114 request for feedback on blind search receivers. We purchased one from a Melbourne importer for evaluation. It lasted 3 weeks before the power supply failed (not totally dead - it still made a pig-like-squealing noise!). I have been dismayed at the quality of ALL blind search receivers; all we have tested have reset and lockup problems, power supply failures and strange spelling (non English!) on the menu. They might be capable of blind searching but in all other respects they appear to be rubbish. I'll let you know when I find one worth owning!"

Garry Cratt, Avcomm Pty Ltd.

A reader comments; p. 15, here.

PROGRAMMER PROGRAMMING PROMOTION

UPDATE

MARCH 15, 2004

Fiji-One on satellite. An announcement earmarking 1 July as a target date for expansion of the Fiji terrestrial television service (SatFACTS #95, p. 6) caught many people's attention. Fiji has one free to air terrestrial service (VHF) and several (3 typically, most areas) UHF-TV pay-TV services using analogue encryption acquired "second hand" from Sky NZ. The company, privately owned, is going to satellite to extend service into the nearly 100 islands which still do not have television service of any kind. The challenges are many - outlying islands do not have full-time AC mains power (being AC generator village by village serviced), few have even a single telephone available, and satellite service must somehow fit into the existing infrastructure. Many are betting it will be 180E, spot beam New Caledonia, but SatFACTS believes it will be a different satellite (although Ku). NagraVision is the front runner for encryption, an Asian supplier is the most likely IRD source. If we are correct in our analysis, coverage will be significantly larger than the rather limited New Caledonia focused 1180E beam from Intelsat and there will be some "viewing opportunities" - using the NagraVision subscription route - for areas beyond Fiji proper. Stay tuned; July 1st is just around the corner.

American TV - direct? Ten years ago it was proven (from New Zealand) but never (to best of our knowledge) from eastern Australia. It is not only possible, but probable. We explore what is required in the way of antenna, LNB, feed and search routines starting on p. 6 here. And it will soon get better - with activation of AMC-10

(135W) and AMC-11 (131W). There are C and Ku opportunities here - including one DVB-FTA package out of Anchorage (Alaska) with six of the USA networks available.

"Remount your antennas gents and ladies - the fun stuff is now off to the east!"

Correction. Big one. In SF#111, p. 27, we published photo of EuroSports net (As2) with comment, "Think of CNN Headline News, for sport." Our parameters were off - badly off. Correction: As2S, 4020V, Sr 27.500, 3/4 is the correct set of numbers (VPID 2825, APID2823). Sorry about that!

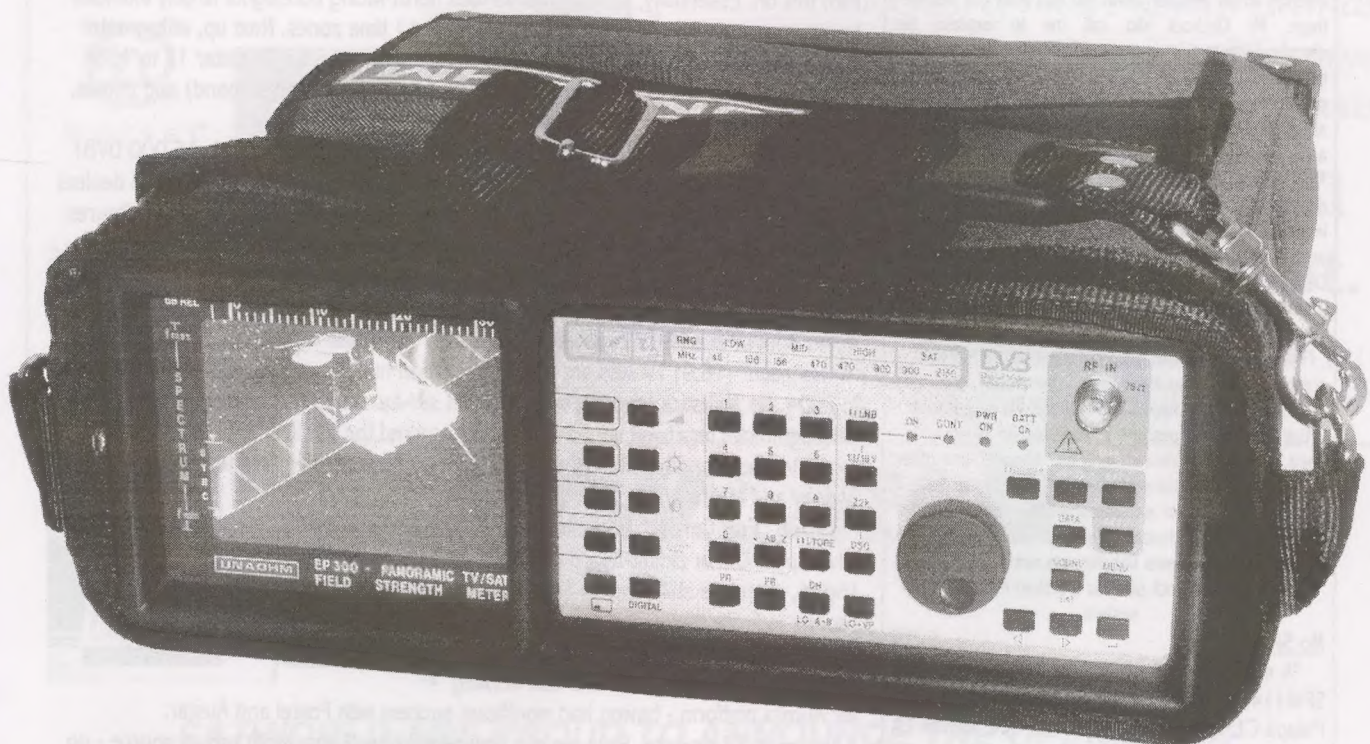
Bluekiss. Adult stuff. Still of questionable legality within Australia although *some* maintain it is 'OK' in privacy of a home, just not legal in redistribution (such as motel) environment. Now on NSS-6 (Ku; 11.078.5H, Sr 5.006, 2/3) and AsiaSat 3 (C; 3669V, Sr 13.333, 3/4) - scheduled to activate Irdeto 2 access cards with initial 14 month authorisation period in mid-March - making it available on Viaccess 2.5 and Irdeto-2 simultaneously. Cards? sales@bluekiss.biz. NSS-6 not available in New Zealand; AsiaSat 3 of course is - for many. With large quantity of Irdeto embedded and CAM equipped boxes out there that have recently become "useless," a new-use option.

Ric Carlyon, TVNZ's new Digital TV Manager, reports, *"We are quietly trialling content on Optus B1. Over next few months, technical processes will be tested, resulting in changes to content. Most of this will be pass-through from various overseas broadcasters. We will find ways to judge what might be popular with viewers when, eventually, the digital bouquet is being decided."* Ric - see letter to left from Jim Blackman at Triangle. You have a library filled with unused material the "independents" would help you redistribute! TVNZ should revisit its current show-once restrictive policy that only makes a mockery of the NZ on Air procedures.

Bryon G.G. Evans, founder of Pacific Antennas (Whangaparaoa, NZ), died of a heart attack March 1 while living on South Island. Evans pioneered satellite TV throughout the Pacific, manufactured antennas in Fiji, installed dishes as large as 13m for commercial users, and was "Mr Satellite TV" for thousands over two decades. He "retired" from active work in 2000, but continued to be a strong supporter of the industry, a generous source of hard to find information until his untimely death; 66.

KWSU & KTNW
Public Television

The first Digital meter FOXTEL Approved.



Analogue and Digital, BER and MER, QPSK and COFDM or QAM for DTH, MDU, MRE, MATV, SMATV or UBB work, the challenges new technology bring to your tv measurements are many.

The new EP300 TV meter is a better TV meter and the first to be fully approved by Foxtel for all types of TV work.

Faster responses to Digital measurements and calibrated digital MER are among the features of the EP300. Not to mention instantaneous spectrum analysis and outstanding Analogue TV measurements.

Improved Data Logging and newly precise Spectrum measurements round out the features of an instrument that is even built better.

Give your customers the measure of a lifetime - with an EP300 from Lacey's.tv

EP-300 faster true BER for QPSK COFDM QAM.

Sole and exclusive Australian distributor:

Lacey's.tvTM

12 Kitson St Frankston VIC 3199

Tel (03) 9783 2388 Fax (03) 9783 5767

branches in Sydney, Ulverstone & Woolgoolga.

e-mail: info@laceys.tv www.laceys.tv

Good Samaritan

Reference your report (SF#114, p. 28) concerning a reader (H. Deckock of Mt Roskill, Auckland) who has experienced difficulty getting service done for his C-band dish system. Our firm stopped servicing C-band antenna systems two years ago and have since that time concentrated on WiFi (Wireless data) while retaining an interest in Ku band antenna systems, largely on behalf of the Dutch BVN service. Mr D. Deckock contacted me asking about service to his C-band dish and I advised him we no longer serviced such antenna systems. He asked for someone who does, and we suggested Mr. Najat who lives close by to Deckock. Najat is an independent installer, is not related to our firm in any way. We were only trying to help Mr Deckock by putting through to an installer but it did not work out between them. Mr Deckock did call me to express his discouragement but as we had only suggested Najat, there was nothing we could do further to help him. I called Najat and his response was that Deckock allegations were not true. I have stopped referring anyone to Najat as he failed to provide a good service to Mr. Deckock and I believe he did do much to resolve the differences between them. Please correct the impressions left in SatFACTS #114 that our firm had anything to do with this situation, other than sending Mr Deckock to Mr Najat."

Sam Abraham, Manager, Babylon Communications Ltd
Our original "source" on this was from Mr Deckock who believed he had been betrayed by the "service" community in the Auckland region. Somebody, according to Deckock, has ripped him off here. We accept that Babylon (which does only limited satellite TV work for their 5 man staff, concentrating on "Whoosh!" and other WiFi service installations) played no direct role in the matter in question and was only attempting to help Deckock find a technical solution to his problem. Our investigation suggests Babylon was not a guilty player here - but Deckock still has a broken motor drive system.

No SA card?

"A minor correction to your Coop's Comment, SF#114. Scientific Atlanta, used by Indovision on Palapa C1, was as you stated a B-MAC format CA but there was no card - just the bare bones SA IRD - of which I still have several!"

BH, Australia

Correct. The SA unit was capable of using a card, but not as employed by Indovision. It was an IRD without a card, dependent upon the EPROM internal memory to recognise the unique "address" sent by the uplinker/programmer to that particular set-top box for authorisation. We erred in our historical recollection!

Bryon G.G. Evans passing

"Thank you for your Apsattv.com posting March 2nd advising of Bryon's death. I recall a visit to his Whangaparoa site and the trance that resulted as he took time from a busy schedule to patiently explain all of his large antennas and the gadgets he so loved to play with. I learned many things from this man, may he be properly remembered for his contributions!"

Stu McLeod, NZ

Bryon first appeared on a SF cover in Volume 1, #7 (April 1995) and subsequently on five additional front covers. When Sky NZ first began and could not afford their own 6-7m dishes, Bryon arranged a "rental plan" to make it possible for them to have a direct satellite link to support their fledgling service. He was incredibly gifted as a mechanical engineer sorting out mount and drive challenges nobody else could solve.

HARDWARE EQUIPMENT PARTS

UPDATE

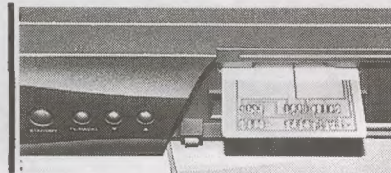
MARCH 15, 2004

Two new Asian satellites scheduled for launch during coming six week period; Russian Express AM 11 is heading for 96.5E (26 C-band, 4 Ku band; replacing well expired Gorizont 28 at this location). AM 11 has a steerable spot beam capability of serving Australia or along and south of equator but history does not suggest they will turn this on. Essentially, satellite has various north-facing boresights largely intended to serve commercial users throughout Russia's 11 time zones. Next up, with greater "local" interest, is April 28-30 scheduled launch of new Apstar 5/Telstar 18 to 138E where it will replace Apstar 1. Predicted footprint coverage map (C-band) and details, p. 28 this issue.

Sales of DVBT rise in Australia. In the last three months of 2002, 16,000 DVBT capable TV receivers were sold from distributors to dealers (a measurement of dealers to consumers is not available). But in 2003, the same three months saw sales figures shoot ahead to 72,000, a 450% gain. Explanations are varied but include greatly reduced 16:9 "digital TV" receiver pricing, channel Seven's coverage of Rugby World Cup, and the launch of HDTV (although virtually none - under 5% - of the TV sets sold in the 3 months is HDTV capable). The future? Estimates suggest 320,000 "widescreen" (16:9) TV sets are now in Australian hands, a number forecast to double in 2004. No statistics covering sale of digital *set-top boxes* is available for comparison although much improved versions have just entered the market; Sciteq P/L, for example, has introduced the Humax F2-1010T after extensive field testing in Adelaide, Sydney and Melbourne.

Those "Fun Cards." Whether gold, silver, platinum or circuit-board created (right), some are still hanging on although reports indicate the majority are now history. Optus now trying to find "right combination" to reduce number still working for Aurora platform - having had significant success with Foxtel and Austar.

Internet TV update. First, we can now reveal <http://spaceshift.org> as source - go there. Next, pricing has dropped as production has ramped up - US\$6,500 singles, less in ten-lot to "distributors." Finally, video quality upgrade by using "scan converter" between PC and TV is very significant - from VHS to S-video as a minimum; "a winner!"



How big a dish? Select footprint level (such as 42 dBw) and read next column right (Ku table is left, 1.12m; C-band table is right, 0.7m). Antenna sizes are for "threshold digital signal lock" with FEC of 1/2. How important? See p. 6.

Ku band

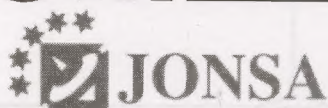
| | | | |
|--------|-------|--------|-------|
| 53 dBw | 0.3m | 42 dBw | 1.12m |
| 52 dBw | 0.34m | 41 dBw | 1.2m |
| 51 dBw | 0.39m | 40 dBw | 1.35m |
| 50 dBw | 0.45m | 39 dBw | 1.5m |
| 49 dBw | 0.50m | 38 dBw | 1.65m |
| 48 dBw | 0.56m | 37 dBw | 1.8m |
| 47 dBw | 0.62m | 36 dBw | 2.1m |
| 46 dBw | 0.73m | 35 dBw | 2.4m |
| 45 dBw | 0.85m | 34 dBw | 2.7m |
| 44 dBw | 0.95m | 33 dBw | 3m |
| 43 dBw | 1.05m | 32 dBw | 3.6m |

C-band

| | | | |
|--------|------|--------|------|
| 42 dBw | 0.7m | 31 dBw | 2.4m |
| 41 dBw | 0.8m | 30 dBw | 2.7m |
| 40 dBw | 0.9m | 29 dBw | 3m |
| 39 dBw | 1.0m | 28 dBw | 3.4m |
| 38 dBw | 1.2m | 27 dBw | 3.9m |
| 37 dBw | 1.3m | 26 dBw | 4.6m |
| 36 dBw | 1.4m | 25 dBw | 4.2m |
| 35 dBw | 1.6m | 24 dBw | 5.8m |
| 34 dBw | 1.8m | 23 dBw | 6.4m |
| 33 dBw | 2m | 22 dBw | 7.2m |
| 32 dBw | 2.2m | 21 dBw | 7.6m |

MELBOURNE SATELLITES

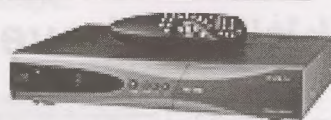
Established 1992
ACN: 065 270 733
ABN: 51 477 349 864



**HUMAX
ACER**



Norsat*



Get your **IRCI-5400z, IR-5410z & F1-Ace** HERE



C-Band LNB
with Scalar Ring

Dual Output Ku-Band LNB
Suit Optus 11.3Ghz
Run 2 Receivers
H/V on Both Ports

Cat# LK-ZINOSDu



*Full Range of Hardware & Accessories
Stock of most Popular Brands
Intersate Inquiries Welcome
Freight Deliveries Available to Most Areas*

**Please Phone, Fax or Email
for SATalogue and Pricelist.**

MELBOURNE SATELLITES Pty Ltd
84 Bayfield Road East
P.O. Box 901
Bayswater VIC 3153
Phone: 03 9738 0888
Facsimile: 03 9729 8276

sales@melbournesatellites.com.au
www.melbournesatellites.com.au

SATWORLD

PUBLIC NOTICE!

**SATWORLD ARE PROUD TO ANNOUNCE THE OPENING OF
THEIR BRAND NEW SHOWROOM!**

MORE PRODUCTS, MORE SPACE, CHEAPER PRICES!

WE STOCK AND SELL ALL YOUR FAVOURITE BRANDS:



eM Tech



HUMAX

NOKIA
CONNECTING PEOPLE

SEE OUR WEBSITE FOR MORE BRANDS/PRODUCTS!

www.satworld.com.au

**FACTORY 2/493 HAMMOND ROAD, DANDENONG, VICTORIA,
AUSTRALIA, 3197**

**PH: 03 9768 2920 FAX: 03 9768 2921 E MAIL:
sales@satworld.com.au**

Looking East - a "habit" we have lost

In March 1995, SatFACTS featured on the front cover a 7.3 metre dish installed at Auckland University which with a horizon to horizon motor drive quite exotically displayed American television from satellites located over the eastern Pacific, and pointing north. Auckland of course was then, remains today, "south" of the equator and for many it was a revelation that you could be in New Zealand, thousands of miles (more than 7,000 actually) "off of boresight" and actually tune in several dozen American channels.

Yes, a ten (or 11 or 13) metre dish would have done better but the images locked in glorious NTSC analogue and using a clever German designed "analogue threshold extension" device, anyone witnessing the reception felt a shiver climb up their back. This was big time "off boresight" reception.

Subsequently, nearly ten years worth, the Auckland University dish has gone through a number of mechanical rebuilds, and no longer "likes" to be pointed around at the "eastern sky." Simultaneously, the Americans have created new, replacement, higher power satellites. Logic suggests, since 1994 was the last time anyone with a "sizeable dish" seriously looked for North American reception from New Zealand (or Australia), that today things might be different. Perhaps better.

Puddles

Every satellite ever built has a "transmission zone coverage pattern" - a region on the earth's surface where the design engineers hope to deliver enough signal "level" (strength) to allow relatively small dishes to intercept the transmissions and play the programming. Transmission coverage (footprint, in the trade) coverage zones are readily available from each satellite operator (www.lyngsat.com). On C-band, the "centre" of boresight might be as much as 42 dBw (even at C-band, this would be 0.7 metre or 70 cm - yes - at C-band!) but as your location is increasingly distant from "boresight" (the centre of pattern), the signal levels go down and the minimum dish size goes up (rapidly - see table p. 4 this issue).

It was in 1981 that early RCA and Westar satellites, designed to serve (or "boresight") North America, were found to have significant coverage outside of the normal boresight pattern.

| Frequency | Title | Ch + Affil | Sr | FEC | PIDs |
|-----------|---------------|--------------|----------|-----|---------------|
| 3880Hz | Anchorage Mux | KTUU/ NBC | 25(.200) | 3/4 | V256/ A257 |
| | | KTBY/ Fox | | | V272/ A273 |
| | | KYES/ UPN | | | V288/ A289 |
| | | KAKM/ PBS | | | V305/ A305 |
| | | KTVA/ CBS | | | V320/ A321 |
| | | KIMO/ ABC | | | V336/ A337 |

AMC 7 at 137W would be a super-resource, transmitting FTA all major USA TV networks.

| Frequency | Title | Ch + Affil | Sr | FEC | PIDs |
|-----------|------------|------------------|---------|-----|---------------------|
| 4060Hz | Alaska TV | 2 chs + radio | 8(.100) | 3/4 | V2160/ A2120 (+) |
| 4180Hz | Alaska One | 1TV, 1 radio | 4(.200) | 3/4 | V1160, A1120 (+) |

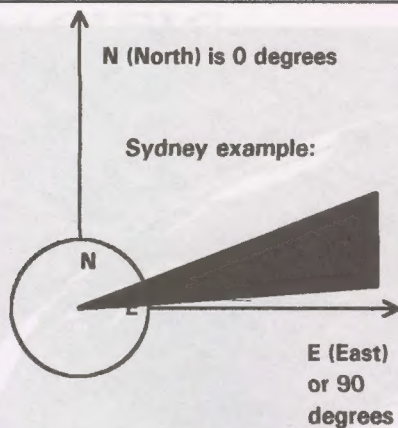
AMC 8 at 139W is nearest to Australia-Pacific with possible footprint "spillover."

| Frequency | Title | Ch + Affil | Sr | FEC | PIDs |
|-----------|--------------------------|------------|----------|-----|-------------------------|
| 12.632R | KWSU Pullman Wash. | PBS | 20(.000) | 5/6 | V4105 A329 (4329) |

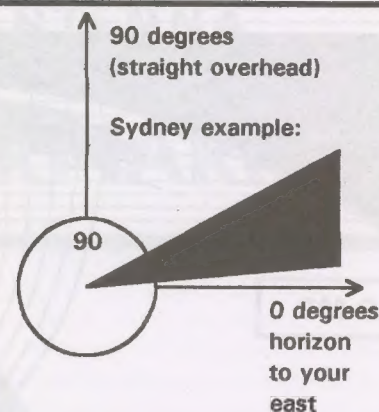
Echostar 1 (&2) at 148W has single FTA service (above) plus multitude of Nagravision between 12.224R (right hand circular) and 12.661R.

These abstract areas of coverage were called "puddles" because they appeared without respect to the actual boresight pattern, often thousands of miles distant from the outer (25-26-26 dBw or 5 metre dish size) coverage patterns. They

| Satellite | Location | Auckland | Brisbane | Dunedin | Melbourne | Noumea | Rochampton | Sydney | Wellington |
|--------------|-----------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|
| Echostar 1&2 | 148W (Ku) | 32 EI / 52 Az | 20EI / 74 Az | 23 EI / 51 Az | 9 EI / 76 Az | 33 EI / 69 Az | 18 EI / 78 Az | 15 EI / 73 Az | 29 EI / 49 Az |
| Echostar 4 | 157W (Ku) | 38EI / 43 Az | 28 EI / 69 Az | 29 EI / 42 Az | 16 EI / 70 Az | 41 EI / 64 Az | 27 EI / 74 Az | 23 EI / 67 Az | 34 EI/ 40 Az |
| AMC 8 | 139W (C) | 26 EI / 61 Az | 11 EI / 79 Az | 18 EI / 60 Az | 1.3 EI / 82 Az | 24 EI / 41 Az | 8 EI / 82 Az | 7 EI / 78 Az | 23 EI / 58 Az |
| AMC 7 | 137W (C) | 24EI/ 62 Az | 9 EI / 80 Az | 17 EI 61 Az | no | 22EI / 76 Az | 7.EI / 83 Az | 6 EI / 80Az | 22 EI / 60 Az |
| C4/AMC9+ | 135W (C) | 22 EI / 64 Az | 8 EI / 81Az | 15EI / 63 Az | no | 20 EI / 77 Az | 6 EI / 84 Az | 4 EI / 81Az | 20 EI / 61Az |
| AMC10 | 146W (C) | 31E/71A | 16E/76A | 23E/53A | 7E/77A | 31E/71A | 16E/78A | 14E/74A | 27E/51A |



Azimuth example: You live in/near Sydney. The North American "belt" will be between 73 azimuth and 90+ azimuth, relative due-north = 0 degrees. You are above the dish, looking straight down on the pole supporting the antenna.



Elevation example: From NSW, the elevation angle when combined with proper azimuth angle (see page 6 table) will pinpoint the satellite for you. Angles to North American birds are relatively low as is azimuth significantly to "east."

"stood alone," sometimes a few hundred miles across, occasionally only a few kilometres in diameter. For the lucky folks who found these puddles in their "backyard" it was a gift from heaven - 3m or small dish size signals where no signal at all was expected.

Puddles are an unexpected "bonus" to normal, planned coverage. When satellite transmission antennas (those located at the satellite) are initially tested, they go onto an "antenna test range" which has the ability to determine the antennas gain, and coverage pattern. By taking test range measurements to a computer, the tests will then be expanded to reveal how the same antenna located 35,800 kilometres above earth will function. This is the basis for the "footprint maps" one finds on the web or in corporate literature. And while an ever-improving but still inexact science and even if done to perfection, antenna range testing totally ignores any fortuitous coverage that might pop up thousands of miles beyond the antenna's intended boresight pattern. Thus there is no ready-reference where one can go to identify "puddles" - from 1981 to the present time, puddles have been located by folks in the field who deliberately or accidentally "stumble across" signals where no signals are supposed to exist.

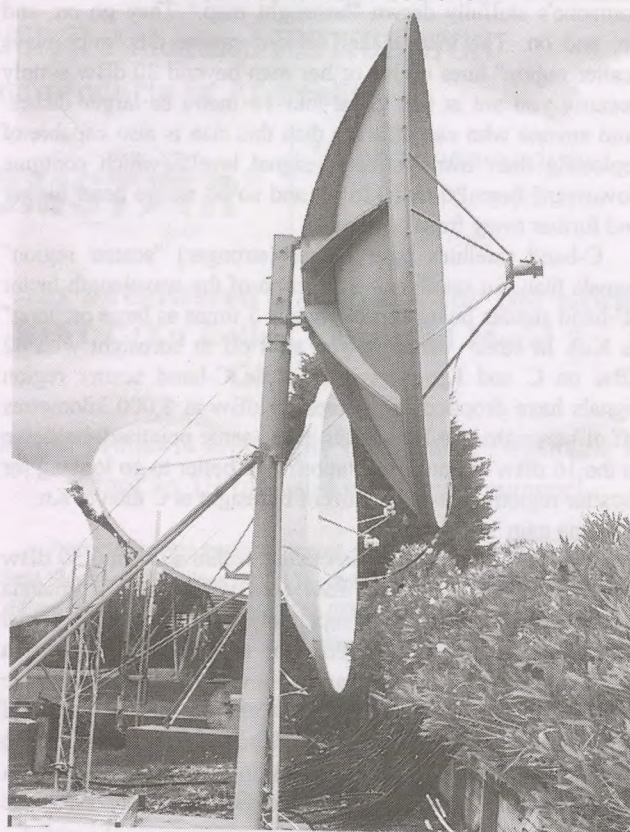
Puddles have a special place in our quest because much (as in much!) stronger signals exist there than in nearby regions where the puddles do not exist. How much more signal? As great as +10 dB has been measured (turning a 20 dBw "scatter level" signal into a 30 dBw signal - the difference between a 8.6m dish and a 2.2m dish). However, there is insufficient scientific literature to do much more than suggest a puddle can be from +1 dB to as much as +10 dB, reference "scatter levels."

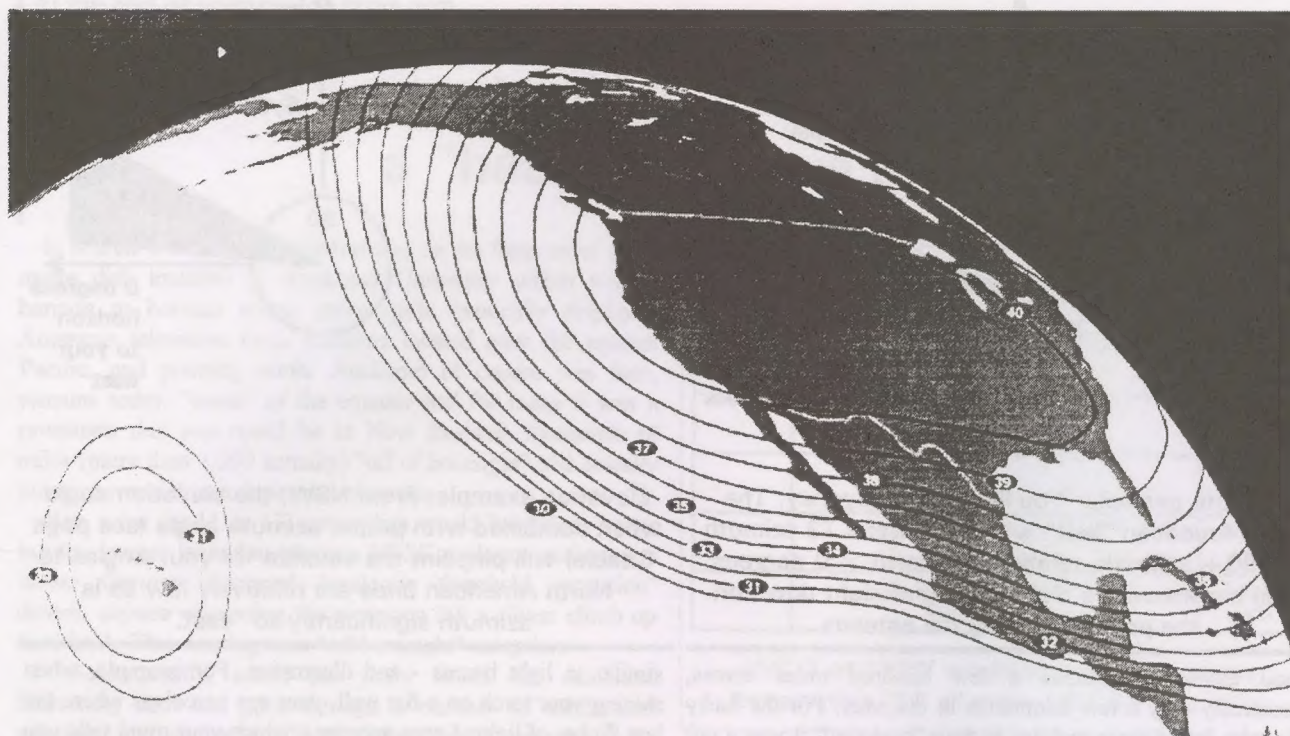
Scatter Levels

Setting puddles aside, virtually all satellites begin with a maximum signal at boresight (centre of the beam) and then the signal level gradually lowers (goes down) a fraction of a dB as you progressively move further from boresight. Think of a powerful hand held torch - shine it at a wall in front of you. The light intensity is maximum at the centre of the beam, and slowly becomes less and less as the edge of the illuminated area is approached. Satellite microwave signals are very

similar to light beams - and illustrative. For example, when shining your torch on a flat wall, your eye perceives where the last flicker of lighted area appears - which your mind tells you is the "edge" of the torch's beam. Here is an eye opener. This is

How low can you go? Elevation angles below 10 degrees begin to combine earth (terrestrial) noise with signal level. But antenna "pattern" (and feed pattern) play a major role - the analysis of what works and what does not is highly individual - the combined effects of all portions of your system. Below? Under 5 degrees for both dishes, providing 24/7 service in New Zealand.





not the edge of the beam - it is the "threshold" of your eye + mind ability to recognise the *presence* of the light beam. There is a larger area, beyond what you see as "the edge," which is also illuminated. What is missing is your eye + mind ability to translate what the eye sees into a light pattern. The light does not abruptly "stop" - it continues into what appears to you to be "dark" and we call this the "light scatter region."

Microwave signals do not abruptly "stop" at the edge of someone's skilfully drawn "boresight map." They go on, and on, and on. The map maker seldom carries the "microwave scatter region" lines on his or her map beyond 20 dBw simply because you are at that point into 10 metre or larger dishes. And anyone who can afford a dish this size is also capable of replotting their own projected signal levels (which continue downward from 20 to 19 to 18 and so on as we head further and further away from boresight).

C-band satellites have higher (stronger) "scatter region" signals than Ku satellites - a function of the wavelength factor (C-band signals being approximately 3 times as large or "long" as Ku). In other words, if you start off at boresight with 42 dBw on C and Ku as well, and the C-band scatter region signals have dropped to perhaps 19 dBw at 8,000 kilometres off of boresight, the Ku signals at the same point will be down in the 16 dBw region. Translation? It is better to go looking for "scatter region" signals well off of boresight at C than at Ku.

Antenna gain

The only difference between living within a C-band 30 dBw footprint region and a 20 dBw area is the size of antenna required (we'll deal with Ku separately, here). A 30 dBw signal (C-band) requires a 2.2m dish for threshold DVB lock (a slightly larger antenna for margin-above-threshold dependable service). A 20 dBw requires an 8.6m antenna for threshold lock, a 10 metre for margin-above dependable service. A 2.2m antenna is affordable - and practical in your backside yard. A 10m antenna is neither of these things. But there are some

interesting things you can do with say a 3m or 3.7m antenna, none the less which make "scatter region" signal searching a useful exercise. For example, a 3m has 3 dB more gain than a 2.2m, and "only" 7 dB less than a 10m. Or, a 3.7m has 5 dB greater gain than a 2.2, and "only" 5 dB less than a ten.

Useful things to do when you *don't have* a ten metre in your backyard.

1) If a distant satellite is capable of placing 20 dBw scatter region service into your backyard, your "signal detection level" with a 3.7 will produce +2 dB of signal (that is 2 dB more than "no signal registers") from the same satellite.

2) A spectrum analyser or quality older analogue receiver can detect and actually measure (indicate signal strength) even this close to the noise - i.e., 2 dB of signal above the receiver noise.

Therefore, you can even with scatter level signals in the 20 dBw footprint range "detect" and "get excited about" some exotic stuff. *Bonus.* The incentive is for you to crank your antenna system towards an exotic location in the sky (about which, more shortly) just to see if in fact there is signal there. The answer, with a 3m and certainly with a 3.7m, is almost definitely "yes - there is!" as long as you have LOS (line of sight) from your yard to the satellite's location. If you don't take the time/effort/skills to "look," you have no way of knowing whether you live in a "puddle." Imagine how upset you might be if after discovering you do live in a puddle and for all of those years you went without reception from (say) direct American TV - simply because you have never previously taken the time/effort/skills to go through a systematic search of the eastern skies!

3) If you have equipment to measure the actual scatter (or more fortunately, puddle!) level signal present, some quick math will work out "how much bigger" your antenna must be to actually have above-threshold reception. OK - so it works



**PACIFIC
SATELLITE**

(AUSTRALIA) PTY. LTD.

ANTENNA & ACCESSORIES SUPERMARKET

DMF227



Economical, light
duty, general
purpose usage

SM-8



Reliable, medium duty
can be used in windy
areas

One brand does NOT fit all; at Pacific Satellite you have mega-choices - three name brands!

Pacific Satellite is the **EXCLUSIVE** authorised **DISTRIBUTOR**
for **COMSTAR** antenna products in Australia.

ST-12



Strong, heavy duty,
suitable for cyclone
areas

**...is a registered trademark for the world's
BEST C/Ku Rolled Expanded Metal 2 - 13
GHz antennas!**

Comstar products are simply unbeatable - available from
7 feet to 16 feet and everyone a winner!

Products are also available through following quality distributors:

Seto Electronic Services (NSW) Tel: (02) 9743 6053 Fax: (02) 9743 6053
V-Com (Australia) Pty Ltd (VIC) Tel: (03) 9886 8018 Fax: (03) 9886 8787
Universal Satellite TV (N.Z.) Ltd. (New Zealand) Tel: (64) (9) 274 7998

3/71 Beenleigh Road, Coopers Plains, Qld 4108 Australia

Ph: +61 7 3344 3883 Fax: +61 7 3344 3888

Email: info@psau.com <http://www.psau.com>

out to be 10 metres - but now you know, *for sure*; no more hypothetical guessing.

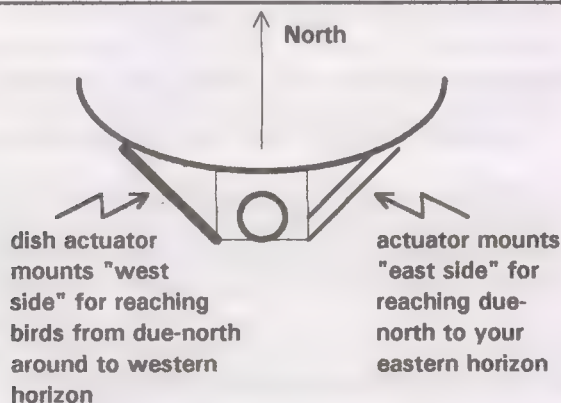
Antenna presets

Still with C-band, the American satellites to the east all employ linear (horizontal, vertical) polarisation's). But experience shows there are very significant signal levels differences, whether in scatter region or puddles, between transponders sharing the same polarity and often even sharing the same feed or transmit antenna at the satellite.

Polarity first. Unless you are employing a receiver-side operated polarisation probe rotation system (i.e. the now discontinued Polarotor device) which allows adjustment of the polarity remotely, the probe on your LNB/feed will have to be (manually) rotated to compensate for the sideways pointing of your dish. Just as a probe aligned for PAS2/8 or I701 must be readjusted when you swing the dish down to AsiaSat 2 or 3S, the same adjustment will be required when you "go east" as well. But - it will be *opposite* to what you have come to expect from "going west" (the probe position still must be rotated, but in the *opposite* direction you are accustomed to doing for swinging between PAS2/8/I701 and AsiaSat). In fact, between a probe set properly for PAS-8 and one of the American satellites in the 130 west cluster, your set-for-PAS-2 probe on vertical will now be almost perfectly set for American signals that are horizontal - there is that much "rotation" of the respective vertical and horizontal wavefronts as you swing to near your eastern horizon.

The Auckland University experience late in 1994. On the 7.3m dish equipped with a 25 degree region LNB, the strongest FTA signals were in the 7 dB region C/NR (carrier to noise). By employing a German built NTI Digitex threshold extension system, signals down to 4 dB C/NR became "clean" (although the Digitex did often create its own set of artefacts which some judged more annoying than sparklies!). All services at that time were analogue although many were Videocipher (analogue encryption) format. Videocipher requires as an absolute minimum a 8 dB C/NR and in fact at least four Videocipher signals were at that level or better - indicating that had the University been so inclined, the 7.3m dish could have provided access to such fabled services as HBO Movies direct from America. It had no such interests, however.

Now - getting to and across the eastern sky. Dish movers (ramrod driven linear actuators) have physical limitations; they are only able to cover 1/2 of the sky-arc. It has to do with "dead centre" - the drive mounts either "left" (west side) or "right"



Angle finder - taped to flat back plate of dish - provides visual monitoring of elevation angle. Various (hardware, builder supply) instruments are available; in this model, set angle desired, adjust dish until "bubble" is in center of "level" marks; you are now at correct elevation.

(east side) of the dish mount pole and any other mounting physics works badly if at all (once the dish moves past the "centre of gravity" the actuator has enormous pressures applied - not good). Worm or chain drive horizon to horizon mounts, on the other hand, have no serious problems with spanning from one horizon (west) to the opposite (east). If you have a motor drive, almost without exception it is a linear actuator, and when you stand behind (south of) the dish, the linear actuator rests to your left (western) side.

To get from a drive that does west > north to a drive that does north > east typically requires taking off the linear

Footnotes for table to right: >

RHC and LHC: Echostar (157W and 148W) employs RHC (right hand circular) and LHC (left hand circular). A linear feed, for example used for B1/B3/C1, will instantly be 3 dB "down" in pickup signal level. If you find signal, and it measures within 3 dB of locking, invest in a circular 12.2500-12.750 feed. Otherwise - forget it! **AMC 10 testing (*)** at 146W is temporary; it will replace Sat C4 at 135W (see text).

Analogue CA: If you have 8 dB or better C/NR, "locating" a suitable VC-2 or other NTSC decoder is NOT a problem; contact SatFACTS.

Bold face: Indicates FTA service.

| Satellite | Location | Band | Analogue search | Digital search | Notes |
|---|----------|-------|---|--|--|
| Echostar 4 | 157W | Ku | (no analogue) | 12.224, 12.311, 12.370 (all RHC) | On circular feed - see notes p. 10. |
| Echostar 2 | 148W | Ku | (no analogue) | 12.239, .268, .297, .326, .355, .384 (all LHC) | On circular feed, see notes p. 10. |
| Echoostar 1 | 148W | Ku | (no analogue) | Starts 12.224 RHC, 29 MHz steps, to 12.661RHC | FTA 12.632RHC: Sr 20.000, 5/6 KWSU PBS |
| AMC 10 | 146W(*) | C (+) | Unknown - see notes (will move to 135W; see text) | (*) NOTE: Testing at 146 - will move to 135W. See E/Az table bottom p.6 here. | |
| AMC 8 | 139W | C | (no analogue reported) | 4060H/Sr 8.100, 3/4; 4168H/Sr 4.200, 3/4; 4180H/Sr 4.200, 3/4 | |
| AMC7 | 137W | C | 3740V, 3800H, 3820V, 3980V, 4080H, 4160H (all Videocipher CA) | 3880H/Sr 25.200, 3/4 FTA 6 ch MUX | |
| Sat C4 | 135W(*) | C | All CA: 3705V, 3720V, 3760V, 3840V, 4000V, 4040V, 4120V, 4140H, 4160V, 4180H | 3740H/CA, 3780H/CA, 3783V/Sr 3.000, 3/4, 3800V/CA, 3860H/CA, 3980H/CA, 4020H, 4060H, 4065V/Sr 5.000, 1/2 | NTSC FTA: 3880V, 3900H, 3940H, 4020V |
| (*) Note: AMC-10 is replacement, now testing 146W, likely to 135W prior to 1 May. | | | | | |
| Gal 1R | 133W | C | All CA: 3720H, 3820V, 3860V, 3900V, 4080H, 4100V, 4120V | 3740V, 3780V, 3880H, 3960H, 4000H, 4020V, 4060V, 4160H | NTSC FTA: 3800H, 3920H, 3940V, 3980V, 4040H |
| Sat C3(*) | 131W | C | All CA: 3740H, 3940H, 3960V, 4040V, 4120V, 4160V, 4180H | 3720V, 3760V, 3780H, 3800V, 3820H, 3860H, 3880V, 3920V, 3980H, 3995V, 4012V, 4015H, 4060H, 4075V, 4092V, 4100H, 4140H | NTSC FTA: 3840V, 3900H |
| (*) Note: AMC-11 replacement launch scheduled May 17; to test at 146W. | | | | | |
| Telstar7 | 129W | C | | 3707H, Sr 7.174, 3/4; 3714H, 3719H/Sr 3.700, 7/8; 3724H/Sr 3.255, 3/4; 3765H, 3780H, 3800H, 3848H/Sr 14.710, 7/8; 3940V, 3980V, 4000H, 4004V, 4060V/Sr 10.854, 3/4, 4135V, 4152V, 4172V | NTSC FTA: 3900V/feeds, 3960V/feeds, 4120H |
| Gal 13 | 127W | C | All CA: 3780H, 3860H, 3940H, 4020H, 4100H | 3800V/Sr 27.690, 3/4; 3840V, 3880V, 3900H, 3920V, 4080V/Sr 28.076, 3/4, | |
| Gal 5 | 125W | C | 3720H, 3780V, 3800H, 3820V, 3840H, 3860V, 3880H, 3920H, 3940V, 3960H, 3980V, 4000H, 4020V, 4040H, 4060V, 4080H, 4100V, 4120H, 4140V, 4160H, 4180V | 3740V, 3891V | NTSC FTA: 3760H |
| Gal/Or | 123W | C | 4000V, 4020H, 4040V, 4060H, 4080V | 3795V, 3812V, 3840V, 3880V, 3820V, 3940H, 3860V, 3975H, 4100H, 4140H, 4195H/Sr 5.500, 3/4 | NTSC FTA: 3740H/feeds; 4180H |

actuator, swinging it to the opposite (eastern) side of the dish, reinstalling it so that it now allows you to drive the dish from north onward east - and back again. For many that may well be more work than the possible new interceptions would be worth. That's a negative, potentially a "project stopper."

It becomes more challenging. Assuming you start with your dish properly adjusted for the western "arc" (AsiaSats or further west on to at least PAS-2 and hopefully Intelsat 701), that tells us your dish is "tracking" the arc. It is important that you make no adjustments to the dish elevation or tracking parts if you elect to swap the drive from the west side to the east side. If it tracks to the west, it should also track to the east after remounting the actuator to the right.

All dishes, including those that were designed to "track the polar arc," are capable of two separate adjustments:

- 1) Elevation, or up and down
- 2) Azimuth, or east and west.

For any dish receiving location, there are two sets of numbers that describe how much elevation and how much east (or west) of true-north the dish must point to locate a specific satellite. For example, from Sydney:

American satellite AMC 7 at 137W, the dish elevation is set to 6 degrees while the dish azimuth is set to 81 degrees (true north being 0 degrees, true east being 90 degrees).

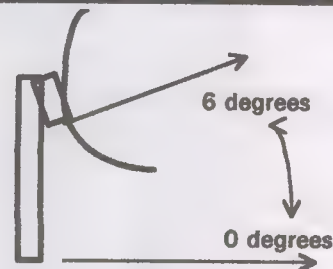
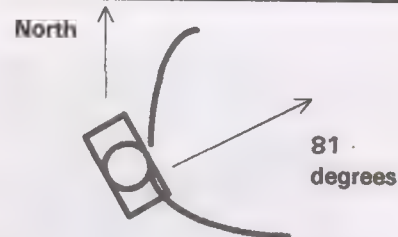
One of these adjustments can be done accurately with simple tools; the elevation. On the rear of the dish is a flat plate or piece of metal which represents the angle of the dish. (photo, page 10) Place an "angle finder" device snugly against that piece of metal, and then manually adjust the dish's elevation until it says 6 degrees. Now, even if you cannot be certain precisely where true-north is, you will know roughly. True east is around to the right (with you facing rough-north) 90 degrees; one quarter of a circle. Drive a stake into the ground to represent where you believe true-east is located from your dish mounting pole, use it as a reference point for testing dish angles.

Now, having adjusted the dish elevation to 6 degrees, swing the dish on the mounting pipe to indicated-true-east. Hook up equipment to the LNB, think about the feed polarity, and turn on the receiver or better yet spectrum analyser.

Starting at indicated east (90 degrees in azimuth), carefully and slowly push (manually) on the dish so it is swinging towards north. The Sydney example given spots AMC 7 at 81 degrees - not very far north from indicated east (only 9 degrees of azimuth). Half of 90 is 45 which would be the same as "Northeast" from your dish. Our AMC 7 example is much closer to true-east than even Northeast so as you push the dish from true east northward, you won't go very far before you have passed over 81 degrees azimuth. The receiver should be set to a transponder that you know to have signal on it (this will be much easier with an analogue signal and analogue receiver; see table here). Lacking that, you need a spectrum analyser so you can "see" the signals that pop up as the dish is pushed around.

No signs of signal? Don't panic - yet. Tables here indicate where there are NTSC (even if Videocipher encrypted) transponders for several of the American-arc birds. Yes - you now have a new reason to have kept an old analogue receiver about!

The most common mistake is with the accurate setting of the elevation angle. If that angle is spot-on for your location, as



- 1/ set elevation of dish
 - 2/ establish outer boundaries for azimuth search
 - 3/ "sweep" dish through arc
 - 4/ reset to new elevation, repeat
-

you "sweep" the dish from east around towards north, you will (will!) find signals. If not, well, next step.

In our example, you started with an elevation of 6 degrees. Change it. One degree, say to 5, and then repeat the sweeping exercise. Still no luck? Reset elevation to 4 degrees and sweep again. Again, nothing? Go back to the original elevation number and this time *add* one (to 7, in our example) and resweep.

When you do have the correct elevation angle, and you sweep east (for North America) towards north far enough to include that tiny spot in the sky where the target satellite is located, you *will* find the signal. Even if it is terribly weak on an older analogue format receiver.

A motorised mount of a different configuration is called Az-El. The azimuth adjustment is on a thrust-bearing, and as the actuator moves the dish LNB polarity setting *stays* constant - thereby eliminating any readjustment to the feed as you sweep the sky. Az(imuth)-El(evation) simply means that whether motorised or done by hand, the dish goes through two separate adjustments as it moves through the sky - one for each function. As noted here, if you will set the elevation using suitable measurement equipment, based upon the elevation you know to be correct between your location and the target satellite, the dish can then be "swept" in azimuth until you locate the correct point for signal acquisition. The table on bottom of page 6 will get you started with your elevation and azimuth settings. Yes, the look angles (elevation) become quite low as you move further inland and south in Australia.

Ku search

Ku transmit antennas (on board the elusive distant satellite) tend to be more focused - producing a lower "scatter region" signal and fewer puddles. A 3.7m antenna at C-band equates to

JOYSAT

SATELLITE DISH ANTENNA

Why Choose

JOYSAT Mesh Dish ?

6 REASONS!

- 1.** Cost effective,
economical
- 2.** Heavy duty frame,
strong mesh
- 3.** Suitable for
windstorm areas
- 4.** High performance,
high gain
- 5.** C & Ku bands; 2-13
GHz
- 6.** Choice of colours:
black, brown, cream and
dark green



AND 7 MORE reasons! 2.3m, 3.07m, 3.7m, 4.5m, 4.9m, 6.1m and 9m!!!

Designed and Manufactured by JOYSAT PTY. LTD.

2 / 1, Stockwell Place, Archerfield. Queensland 4108 Australia.

Tel: 61-7-3255 5211 Fax: 61-7-3255 5126

www.joysat.com E-mail: info@joysat.com

FIND OUT TODAY

WHY

JOYSAT antennas are a "True Joy!"

a 1.5m at Ku - anything that large or larger at Ku will produce the same relative results at Ku as the 3.7 at C. A C-only-rated 3.7, however, will never function as well at Ku as it does at C. Your 3.7m C-band outfitted for Ku might do as well as a 1m at Ku - seldom much better (even when the dish is equipped with "dual-band" tightly spaced mesh).

The Echostar Ku targets (157W and two at 148W) employ circular polarisation; a linear (V/H) LNB(f) and/or feed will automatically lose at least 3 dB of signal when attempting to receive these satellites, and it could be significantly greater loss. The rule of thumb here is that if you do find any of the Echostar satellites with a linear feed, even if only just a couple of dB above noise (no signal), by sourcing a circular polarity feed for Ku and retrofitting the dish, you are very likely to be at or above digital threshold. In this instance, "some signal" is an outstanding achievement with a linear feed. Asian readers note: Echostar 4/157W is above your horizon (Seoul is 2 degrees, Tokyo is 13; Echostar 1 and 2 at 148W are near 6 degrees elevation in Tokyo, as well).

Footprints - now and future

Published/web available footprint maps are at best "indicators" of intended coverage levels. This is especially true when you roam beyond the last footprint circle into the "microwave scatter region" where puddles may also be forming.

USA satellites routinely include Hawaii coverage, using a "spot" or "side" beam which extracts a minor amount of power from the primary transmit antenna (the one going to "CONUS" or Continental United States) and feeds it to a small, tightly formed beam featuring only Hawaii. Three examples are shown above, of which AMC-10 to be moved to 135W as a replacement for existing Satcom C4 is of most interest.

Hawaii beams have two dimensions - the strength at the centre, and the shape of the pattern. A perfect circle is impossible but the nearest antenna designers can create is a "teardrop" that is of approximately equal height (north by south) and width (east by west). If you want out-of-boresight performance (such as Hawaiian beam picked up in New Caledonia), what you are looking for is a strong centre signal level (35 dBw will do) and a totally unstructured fat-on-one-side pattern. Note AMC-10, upper right. Potentially, it doesn't get much better than this. What the transmit antenna designers have done (bless their hearts!) is allow the western edge of the pattern to "drag" or flow all of the way to the horizon - the point to the west (of Hawaii) where the elevation (look angle) is zero. Where might that be?

Not in Melbourne, but up the east coast from 147E (Melbourne is 144.58E) gradually inland to 144E in northern Queensland (Brisbane's elevation to C4/AMC-10 is 8 degrees). Now would be a good time to check the C4 levels (if found) as a reference so when AMC-10 replaces C4, you know how much better off you are at that point. It could be significant - as much as 6 to 7 dB. The Hawaiian "spot beams" create an interesting side effect which experience tells us is "magic" for



Three versions of C-band to Hawaii. *Left*, AMC-7 (137W) is teardrop shaped bulging slightly to north-north-west; peak 35 dBw. *Middle*, Satcom C4 (135W) has larger Hawaii footprint but this is deceiving because centre is only 31 dBw. New AMC-10 (going to 135W, replacing C4) has largest Hawaii footprint (*on right*), 35 dBw centre, with 27 dBw outer ring disappearing off map to left (27 dBw is still 3.9m "reasonable size" antenna) - heading for Marshall Islands, Kiribati, Tuvalu. This beam could easily reach Nauru when AMC-10 goes on line later in 2004 (launched February).

those unpredictable "puddles." Now we have not one (CONUS) beam that might make puddles, we have two (adding a sizeable AMC-10 Hawaii pattern). The two do not function in tandem - each one is its own creator of puddles and microwave scatter region signals. For some unfortunate locations, the two separate signal sources will cancel - one will subtract from the other leaving net-zero. For other more fortunate locations, the two will "add" (called "in phase") and you will see puddles and scatter region signals that are as much as 3 dB stronger than could be expected with only a single source.

Bottom line

What is happening in "your backyard" can only be determined by using suitable equipment and skills to "have a look." The procedure, outlined here, is not complicated but it is exact. Wandering around with a dish that is not purposefully directed at a known elevation angle (and by test, azimuth) is a total waste of time and equipment.

Keep a log book - write down the elevation angles you trial and when you identify weak signals (see table of targets, p. 11), carefully "log" what you see even if the numbers do not fit the references given here. Older American satellites are entering a replacement period (C1 at 131W is to be replaced by AMC-11 also during the current year - June?, with a transmit boresight pattern identical to AMC-10) and early indicators are all positive for central and western Pacific locations. There could well be direct American TV in your future!

Antenna? Well, short of finding you are smack-dab in the middle of a fortuitous puddle, this is not a game for serious watching of TV with a 2.4 or 3 or even 3.7m dish. At least not before AMC-10 and AMC-11 come on line (they having "bulging" Hawaiian spot beams). First, you find the signals. Measure the levels. Tell us what you find. Then we'll tackle "the antenna" aspect as a separate challenge. There are some options here using technology pioneered in the early 1980s but largely forgotten as new, more powerful satellites came on line.

Six live American channels carrying all the major US networks (137W)? It doesn't get much better than this.

Reader Response to SF#114: DGT-400s; Smart Splitters; NZ Sky Zenith Receivers

DGT400 hold outs

"I am using a Gold C with this receiver and have another DGT of later vintage which was working in a similar fashion. The CAM version seemed to have no effect on the performance of the receiver. There were issues with no information on some channels, locking up on others at times. It may have been a fluky interaction of the really old firmware/software in the box not being upset by some of the recent changes - who knows? I would put it into the 'good luck' category. I tried both 1.07 and 1.13 CAMs and it seemed to make no difference. The later firmware/software receiver was similarly working OK for a while but then started to show symptoms to the UEC 660). I think this one has now gone plain faulty as so many of them have done over the years (mid-February 2004)."

OO, Victoria

Smart Splitter

"(Mine) took a long time to come and I thought the source (Pakistan) had done a runner with my money. They had a user manual on a web site but when I downloaded it, a virus was included! I managed to get it to run OK until Gold Cards made it unnecessary although I recall one had to turn everything on in the correct sequence to make it behave. I am not sure how (or if) it will handle red cards. The interconnecting cables (Smart Splitter to trio of receivers) are standard RJ11 to RJ11 for anyone who has a box but not the interconnection cables."

660 problems

"Taming the (UEC) 660 to work with non-standard cards has been difficult - now that I have it running, I dare not turn it off!. Each time I tried one of the 'normal' home transponders, the receiver wanted to go to 12.305 and give only one channel, lock out the menu, and then refuse to turn off! Eventually I put in 12.305 at Sr 30.000 and it actually worked though I had to disconnect the IF (cable from LNB) when the scan reached 12.438 as it would otherwise hang at that point. It would then time-out and go past, after reconnecting the IF cable."

GO, NS

Zenith Sky IRD

"Have had some success in urging the (Sky NZ model) Zenith IRD function on non-Sky services. It does not want to allow access to the 'tuner control' menu once it has locked onto a service. Try turning the receiver off at the power point and disconnect the IF. Connect the IF to the desired feed and reconnect mains power. Hit the "+" key which should bring up the 'Service Guide' which in turn should have 'Tuner Control' highlighted. Now hit 'Enter' (key located in centre of arrow keys); should now see the 'Tuner Control Menu'. This displays the usual tuning parameters. Hit 'enter' against each parameter, key in the frequency and soon hitting enter again after each is changed. If it accepts these settings, it will now give a signal strength and signal quality reading - and say 'No Service Selected'. Hit "+" once again and a channel list will come up. I am using this receiver on NSS6 presently. However, the box is not 'happy' with this mode of operation and is selective as to

what it will load; for example one of the TARBS transponders (TV Moda, etc.) but not the other. It will also play the transponder which has the New Skies promo. Using it on Foxtel, it brought up TVSN - pity I don't have a Foxtel NDS card to try (as this is a NDS format CA box). I have also been able to access the interim-FTA Foxtel and Austar channels with it - for as long as they were testing FTA. It is important to emphasise the box is very touchy about playing non-NDS, non-as-designed-for services. Once it has locked onto a signal, you can no longer bring up the tuner menu to change it to something else - until you depower the box at which point it reverts to a default group. The defaults in my unit are quite unconventional - but as this is the only Zenith unit I have seen, cannot comment on 'who' these defaults were intended for: (Freq - 12370, Pol Hor, Mod QPSK, S/R 22.9120, FEC 3/4)."

EW, Victoria

Power supply design

"Curious about the production quality of the current trend to blind search receivers, my attention was drawn by a comment from Garry Cratt concerning the power supplies. When you pop the top from the various models out there (Coship, Innovia, Powtek to mention three), several things jump out. First, the power supply sub-boards do not appear to have originated at the same facility as the CPU/processing board. There are many significant differences in the way the boards are laid out, the parts used - checking further, it appears the firms who 'assemble' the blind search models are sourcing their power supply boards from a different supplier than the processing board. There is nothing inherently concerning about this, provided the power supply has been suitably designed and uses acceptable technology.

"Garry found a model he brought in for test had a power supply failure after 3 weeks of use. As I had access to a similar units for evaluation, I pondered what might be first to fail. Australia's AC mains run higher, on average, than perhaps any other developed nation. Whereas New Zealand mains rumble along in the region of 230 Vac, most Australian homes experience 250 Vac and in areas lightly loaded (such as rural homes at the end of long power runs) the levels typically exceed 260 Vac at least a few times each day. A power supply designed to function over a range of 90 to 240 or even 250 is at risk in Australia.

"Units imported from other jurisdictions, such as areas where a 120 Vac mains exists, have the wrong mains plug. In one unit inspected, cutting of the incorrect plug you are presented with two wires - one blue, one brown. Following Australian standards, connecting the brown wire to active results in a potential problem - the rear deck mounted double pole switch has the active and neutral reversed - the blue wire is internally connected to the fuse. Make no assumptions about blue and brown wires; trace before retrofitting with a new mains plug.

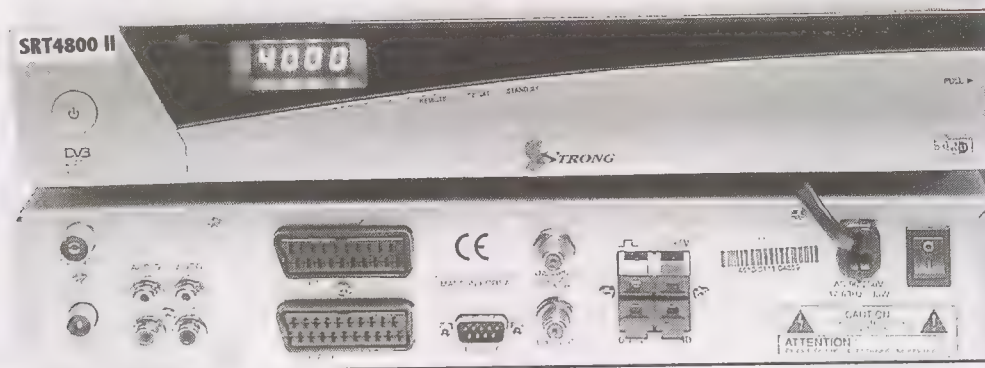
"Using a variable mains source, the difference in power consumption is 3 watts between 120 Vac and 240 Vac; a 15 percent increase in IRD generated 'heat'. The SMPS operates

Twin Slot Common Interface



THE ALL NEW SRT4800 II

**IS NOW AVAILABLE FROM YOUR
STRONG DEALER**



FEATURES

- Dual CI slots
- 4000 Programmable channels
- Teletext Decoder
- Digital audio out
- Picture in graphics
- Electronic program guide
- NTSC to Pal converter
- DiSeqC 1.2
- Data transfer between units
- Upgradable from our Web site
- Full factory warranty and spares backup
- C Tick approved for Australia and New Zealand

Can be supplied with
2.06 IRDETO CAM
2.09 IRDETO CAM

See your **STRONG** Dealer for our complete range of satellite receiving equipment

- **NSW** ELECTROCRAFT 02 943 83266
- **TAS** EXTRA CHANNELS 03 63348255
- **QLD** NATIONWIDE ANTENNA SYSTEMS 07 3252 2947
- **WA** NORSAT 08 9451 8300
- **VIC** STRONG TECHNOLOGIES 87957990
- **New Zealand** HILLS INDUSTRIES 09 262 3052

STRONG Technologies
ABN 35 097 861 731 PTY LTD

AVAILABLE
Irdeto 2.09 cams
Aston cams

Internet: www.strong-technologies.com - E-mail: admin@strong-technologies.com

60 Wedgwood Road, Hallam, Victoria 3803, Australia

Tel: +61 3 8795 7990 - Fax: +61 3 8795 7991



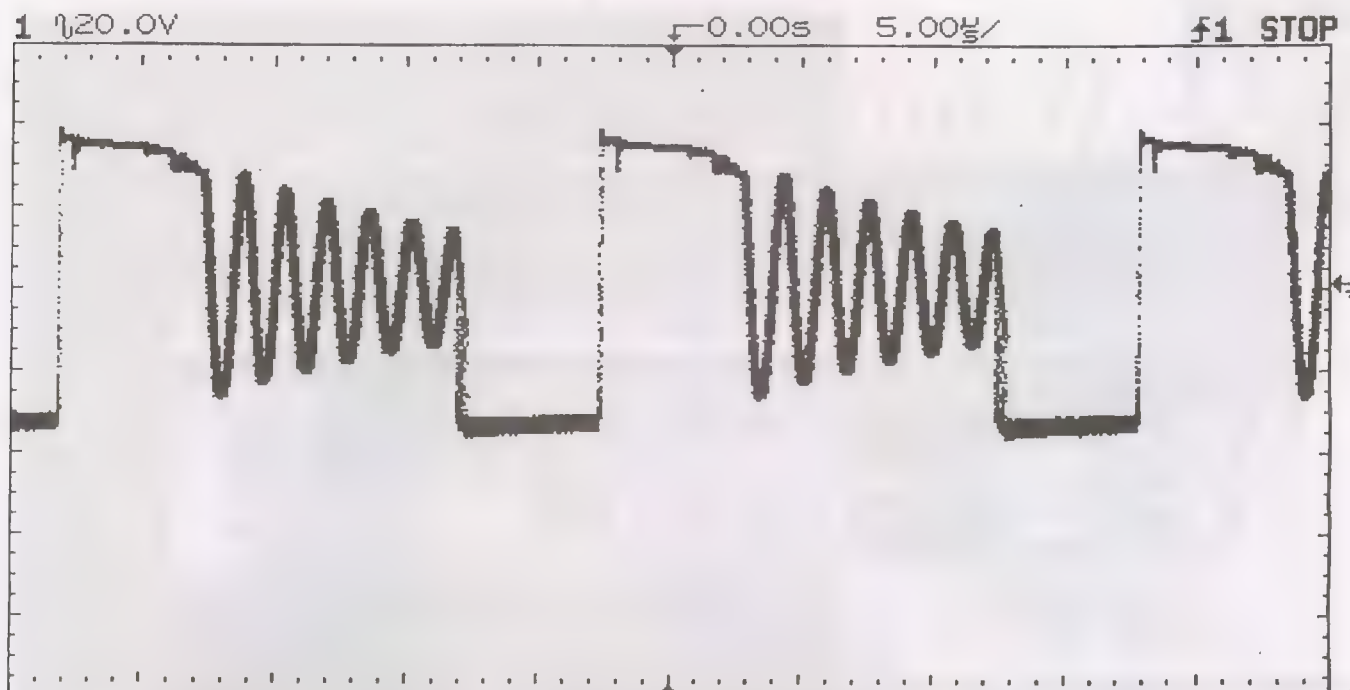
SRT 4800 II

- 4000 Programmable Channels
- Dual Common Interface Slots
- DVB, MPEG-2 Compliant
- C/KU Band
- SCPC/MCPC Reception
- 2-45 Ms/s Symbol Rate
- Loop Through Tuner
- Autoscans, Autoprogram
- PID Insertion
- Picture In Graphics
- 4 Digit LED
- DiSEqC 1.2
- 64 Universal LNB Control
- Mechanical Polarizer Control
- 0/12 V External Switching
- RS-232C Service Port
- Upgradable Software
- Data Transfer Between Units
- Teletext
- Electronic Programme Guide (EPG)
- Parental Lock
- Auto Power Back On
- PAL/NTSC Modulator
- 21-69 UHF PLL Modulator
- VCR Loop-Through on Stand-By
- Digital Audio Output
- Auto Voltage (AC 80-260V) SMPS

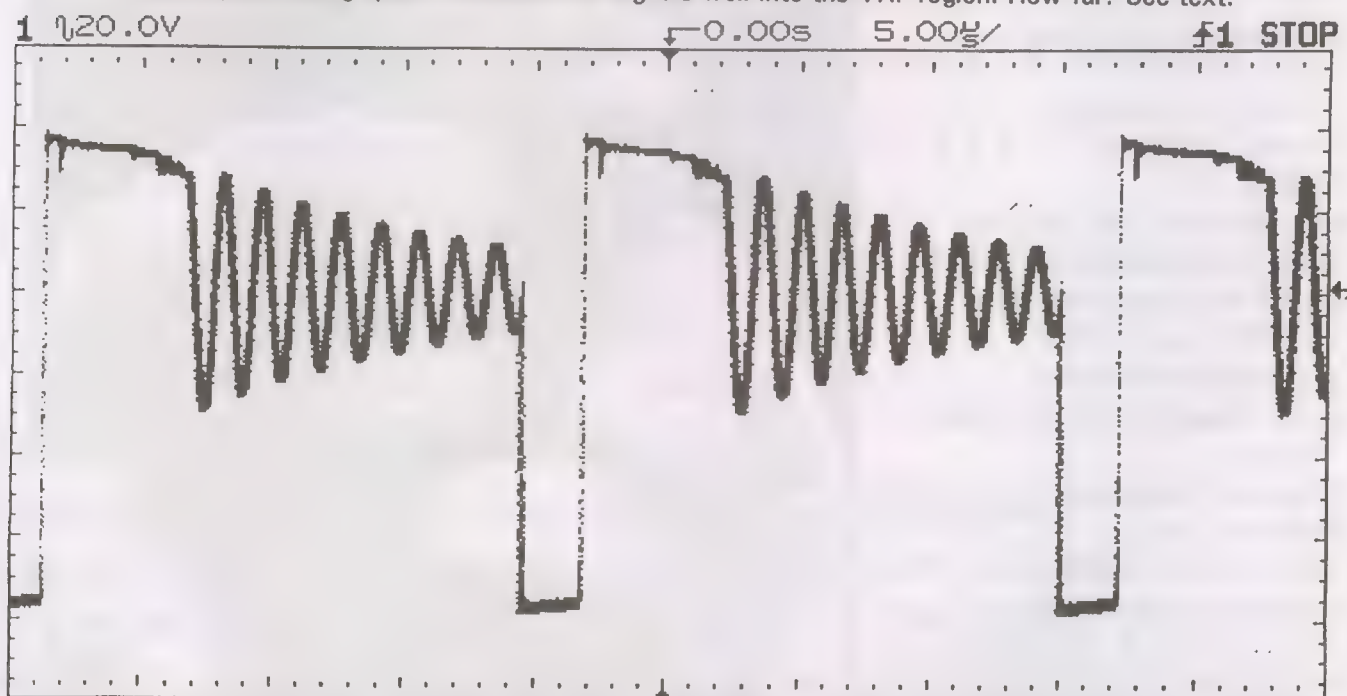
STRONG technologies

www.strong-technologies.com





Above - operating on 110 Vac, 50 hertz, measurement at output of T1 (SMPS transformer) with probe connected to anode of rectifier diode and CRO ground to SMPS ground. All transformer secondary windings have a similar waveform: Frequency of SMPS is 48.8 kHz, oscillations are at 625 kHz. Below - same measurement but with IRD now operating from 240 Vac, 50 hertz. Tests indicate the transformer is "ringing" and in fact removing the CRO probe from anode of rectifier diode, holding in air several feet from the transformer, one can still "see" the ringing. Which means? The transformer itself is a transmitter creating switching-speed modulated RF signals well into the VHF region. How far? See text.



only a small portion of the mains cycle, drawing around 500 mA on 120 V (55VA) and 280 mA on 240 V (67VA). These measurements are with no LNB powered - about which more shortly.

"Measuring the transformer's radiation levels included looping a terrestrial TV antenna providing Australian channel 6 (175.25 MHz) through the IRD's terrestrial antenna fittings to a TV set. The 175.25 signal was measured as 68 dBuV; nominally more than enough signal to provide interference free

terrestrial television. Unfortunately not when looping through the IRD. Now the SMPS was pumping switch mode power supply modulated lines (diagonal, black and wavering) on top of the terrestrial TV signal.

"This IRD uses a linear regulator to control LNB voltage (a more common practice is to use two secondary windings on the SMPS transformer). By selecting linear regulators, the designer opted for an inefficient power supply that will run hot. Remarkably, the IRD consumes only 22 watts (240V) but even

more remarkably, it requires but 12 watts to actually operate - poor power supply design 'dumps' 10 watts as heat. There are other LNB problems. The electronic components that sense and tell the microprocessor of an over-current condition have not been fitted; totally missing. In place of these parts, a device known as a 'Polyswitch' which the written manual defines as, '0.5Amax, overload protected'. Curious about this, as Polyswitches are nominally more money than the sensing component parts it replaced, I tested the device. It may be rated at 0.5A max but in fact it took 1 amp for the switch to open. Shutting down the LNB voltage when the current consumed exceeds 0.5A versus when it consumes 1.0A is a totally different situation. At 0.5A shutdown, the power supply should survive. When the Polyswitch requires 1.0A to open, well - a great deal can burn up in the power supply between those two points.

"LNB voltage is set by the two aforementioned linear regulators. With a LNB current of 250 mA (a common value) at 13.3V, the regulator has a measured input of 23.69V and an output (to the LNB) of 14.23V. Thus the regulator is dissipating (throwing away) 2.3 watts of energy. At 494mA LNB current draw, the voltage on the ID's back panel F connector is now exactly 13V while the regulator has an input of 22.98V and the regulator output is 14.29V. In this worst-case scenario, the linear regulator is dissipating 4.3 watts (after a few minutes, a heatsink affixed to the regulator is far too hot to touch - the heat has to go someplace!).

"There are many other power supply design problems involving heat and a failure to take design steps to limit or totally eliminate SMPS interference that either radiates directly from the power supply transformer, the leads inside the power supply, or back into the AC mains line - all of which assist the SMPS in producing significant switch mode noise for all radio (AM and FM), and TV reception through at least Band III (200 MHz). Anyone who has inspected these receiver power supplies, and who denies there are problems, lacks the technical skills to evaluate what is to me obviously a significant step backwards in good engineering practice."

AI, NSW

Hardline revisited

"We use .500 (1/2") hardline for cable runs that exceed 100m and bury the line between dish and building (receiver) where practical. A recent lightning strike wiped out one of our lines in a most unusual location - at a mid-span splice point (about 140m from the dish, another 100m to the receivers). The photos (here) show what happened. Lightning struck near the dish, wiped out the LNB and then travelled through the hardline towards the receiver. At the (right angle) hardline splice, where we joined two pieces of aluminium cable, the splice totally came apart - acting (thank goodness) more like a 'fuse' than a point to point connection. The first photo shows the *outside* of the splice after the lightning strike - from all outward appearances still OK. But the second photo shows what the inner parts looked like - burnt black to a crisp. The poly/plastic insulation material disintegrated while the brass screws and inside connections simply turned a toasty black. Replacing the splice (and LNB) restored service!"

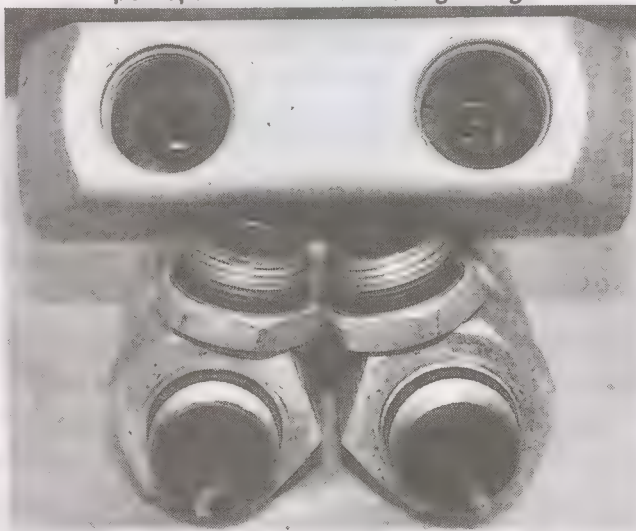
George W, Qld.

Analogue threshold extension

"I have recently become interested in acquiring signals from the American satellites on C-band analogue (analog as the yanks call it!) and understand there was or is a rather



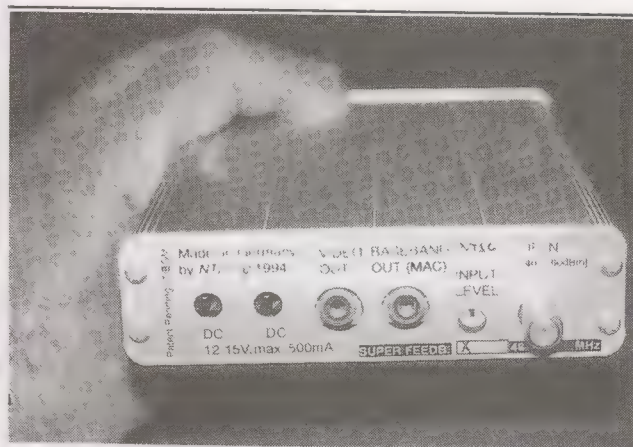
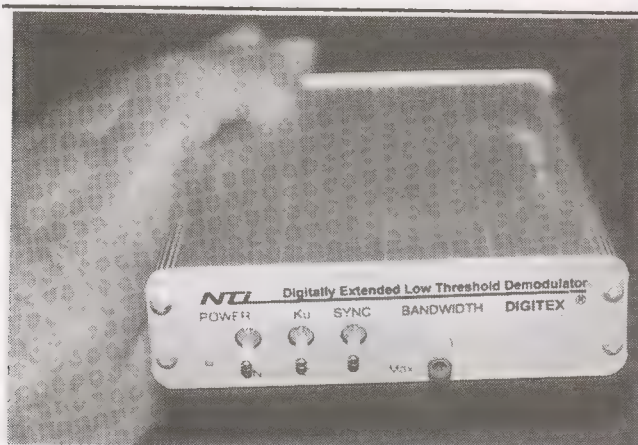
Double right angle hardline splice fitting (above) after lightning strike - no visible indicators of damage. Below - interior parts "cremated" by perhaps a million volts of lightning.



sophisticated threshold extension gadget available that will turn a 3 or 4 dB carrier to noise ratio signal into something you can watch. I appreciate the last Palcom series receivers (SL 7700, 7900) analogue receivers had a high quality threshold extension system built in with up to 30 steps of extension. Which is the best way to go?"

SH, Queensland

The German designed and manufactured NTI "Digitally extended low threshold demodulator" was the best of the best in the 1995-1996 era, just as analogue TV came to a glorious finish. Except, as you note, in North America. As our table (p. 11) indicates, there are still plenty of NTSC analog services operating on the "western satellites" which we already know can be received in at least New Zealand, Tahiti and perhaps elsewhere. The NTI unit had limited production, and most of the units built were for PAL - not NTSC (this is a very important point - you do NOT want a PAL unit). Palcom



NTI Digitex digitally designed analogue threshold extension unit was created in Germany in two separate (non-compatible) modes - PAL or NTSC.

receivers did not care whether the weak (below threshold) signals was NTSC or PAL and while the NTI was the best of the best, a Palcom was a suitable second choice. The NTI's by the way were (are) somewhat difficult to set up and maintain - if you locate one for sale on the web or elsewhere, try also to obtain a full instruction manual (rare as hens teeth) in English (even more rare)! SatFACTS had a review in issues #4-5-6, while no substitute for the written manual, will at least get you started. For factory-sealed Palcoms, try Phoenix Technologies (03 9553 3399). By the way - the NTSC Videocipher analog services require a minimum of 8 dB C/NR to lock properly - having said that, if you get to that number (or better), locating a US sourced authorised Videocipher is not a big challenge.

Austar + Foxtel Update (C1)

"On February 2, the ABC TV channels (Aurora) have been running the following message on their EPGs: "Due to legal requirements the ABC will permanently block the satellite transmission of interstate

ABC local radio and Radio National." Trying two separate NSW Aurora issued cards (including one not in use in several months), found both behaved the same meaning Optus did not remove the codes from the cards to block channels, rather they gave new (previously unused) codes to the blocked (radio) channels. The ABC radio channels these two cards play are ABC FM (all 5), ABC JJJ, ABC PNN, ABC RN SE, ABC RR SE, and strangely ABC RR V (i.e. Victoria's local ABC service). The SE channels apparently are NSW so perhaps anyone in the South-eastern states (i.e. Victoria, NSW and Tasmania) still has access to NSW and Victoria radio channels, which makes a joke of ABC's attempt to block interstate radio reception.

February 4: T1Lower has new symbol rate and NIT for itself only. 12.287V, 28.199, 1/2 appears on some IRDs as Foxtel and label of Tandberg. Now, a PAT loading one channel; 'TEST,' decimal PIDs V308, A256, PCR 308. These are typical feed PIDs, not usually used by OPTUS for MCPC, except for temporary tests. T1Upper remains at 12.322, 28.220, 1/2 without NIT or PAT. T2, previously GlobeCast, again running this date: 12.367V, 27.800, 2/3 but no NIT or PAT (NANZ beam). T5 also running, 12.487V, 27.800, 3/4

Wavelength communications

SUPERJACK

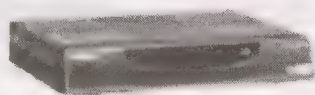


DG-120

DisEqC H-H Mount

- For receiver with DISEqC 1.2
- Compatible with any receiver (option)
- Everything controlled via 1 coaxial cable
- Manual East/West buttons for easy installation
- High efficiency designed
- Compact structure
- Ultra low noise

TOPFIELD



TF4000PVR

Digital Satellite Receiver with CI and HDD

- dual tuner (zapping & recording)
- Compatible with all kinds of HDDs
- editing function on the recorded contents

irdeto 2.09 cams

ECHOSTAR

DSB-3000 IR

Digital Irdeto Embedded

- 1-Smart Card Slot for Embedded Irdeto Descrambling
- Multiple Search Modes
- 7 Day EPG
- MPEG-2 Main Profile at Main Level
- Teletext OSG



Wavelength Communications Pte Ltd

1 Rochor Canal Road, #02-26 Sim Lim Square, Singapore (188504)

Phone # (+65) 6332 2275 Fax # (+65) 6334 3017

Email: sales@wavelength.com.sg

Website: www.satellite.com.sg

PACIFIC ANTENNAS (2000) Ltd.

Brokers of new and used antennas.
All sizes / makes together with
associated fittings and equipment.

Your one stop source for antennas and satellite
electronics for the ENTIRE Pacific region.

We now offer a full range of satellite equipment
designed for your particular
personal or professional requirements.
Including: 2.4 to 13 metre antennas, feed
horns, mounts, LNBs, digital and analogue
receivers, geostationary and inclined orbit
manual and automatic tracking systems,
cable and fittings.

Most equipment available on short or long
term leases. Hire Purchase (HP) also available.

PO Box 214, Silverdale, Auckland, NZ
Ph/Fax 64-9-426-2324; Mobile 0274 789 160
Email: pacant@clear.net.nz

INSTALLING AURORA KITS?

Buy your kits from the people who have
been solving television reception
problems for over 40 years;
useful technical advice available.

The deal

- Optus Approved UEC Model 910 IRD packed with a 4
page out of area reception application
- Aurora card
- LNB
- 90cm dish (dish shipped totally enclosed in a wooden
crate - pallet size)

NEW compact model. All for \$548 plus
GST and freight. Trade installers only, from

RURAL ELECTRONIC PRODUCTS

"The better reception centre"

313 Summer Street Orange NSW 2800
Phone (02) 6361 3636

SATELLITE TV IS A GREAT HOBBY - Let's not forget that!

Since 1976 we've been involved in satellite TV. A hobby in those early days, our interest led to establishment of a business in 1981 that has introduced thousands of people to the exciting world of satellite TV. We produced our first international satellite receiver kit in 1986, and the first DIY home satellite system in Australia back in the early days of 1990.

Along the way we have found that above all else, customer support is critical. If you look around the industry, you'll soon sort out those vendors who operate on a strictly commercial basis, and, those who really have your real hobby interests at heart.

That's why we have made it our priority to give you all of the information to help you make your hobby a success. So if you are contemplating Satellite TV as a hobby, give us a call; we'll help get you off on the best track. Who knows - you might even become a part of this growing industry!! You can count on our decades of experience to provide you with the best "right" solution at an affordable price.

AV-COMM Pty Ltd

P.O. Box 225 Brookvale NSW 2100 AUSTRALIA
Tel 61-2-9939 4377 Fax 61-2-9939 4376 or, visit our website at
<http://www.avcomm.com.au>
Email cgarry@avcomm.com.au

You are welcome to also visit our showroom (24/9 Powell's Rd, Brookvale NSW),
join our E-mail newsletter service (addme@avcomm.com.au)

(Av-Comm Pty Ltd ACN 004 174 478)

without NIT or PAT. T11 (Austar Interactive) 12.305V, 30.000, 3/4 with EXPO operating rather than previous test card. T19 (12.638H), 27.800, 3/4, previous home for Austar's SBS, ABC and EXPO - now moved to T11, has several new channels. Transponder has Irdeto 1 and 2 + NDS, 9 channels + Austar's 24 radio channels.

February 5: T3, 12.407V, 30.000, 2/3 - is not carrying same programme content on BTv3 as found on Optus-Aurora labelled BTv3. T5 (12.487V, 27.800, 3/4) now has NIT of 12.487V, 23.333, 3/4 and satellite identifier of 1640. Optus uses a satellite identifier of 1560 on Optus C1 MCPC and 1520 on B3, suggesting this equipment was last used on a satellite at 164E. There is a PAT loading one TV channel labelled "TEST," similar test card to Aurora's TUNE channel, minus the scrolling text. T11, 12.305H, 30.000, 3/4 (Aurora interactive transponder). Austar's ABC and SBS are now CA (Irdeto 1 and 2, no NDS). EXPO, aHOME and FYI (using taped material from last November) are FTA. Strangely, a channel labelled AITV86 is running a similar tape loop from July 2003; CA.

February 6: T3, 12.407V, 30.000, 2/3 Aurora home - Optus has returned software upgrade for the UEC642 IRDs to this transponder. It is the old 'Ed Guz' version). T19, 12.638H, 27.800, 3/4; Optus has shuffled the channel sequence, for example, TWC is now second channel on transponder (V1021, A1022) labelled TWC2 but also continues to appear as last channel as well ('TWC').

February 10: NIT changes on pay-TV transponders (it is a wonder that all of these changes are not driving consumer IRDs crazy!). Previously two NITs totalling 14 transponders, now resplit into 3 NITs. Reference p. 30, SF#114, the break between the first and second NIT occurs between 7 and 8, while Austar's interactive remains on a separate NIT. Many of the transponders have new channels but these are only 'Virtual' channels as they use the same V and A PIDs as existing channels. The new channels may have different labels from the originals, possibly intended for different IRD brands some of which show only a limited number (such as 4) letters in channel labels. Optus has made it so a particular brand of IRD will only load the channel with the label suitable for that IRD. The list is complex, and will not be relisted here - each to his or her own!

Observations: The slide that appears on FFC channel on T19 reads, "Your Fox Footy Channel has relocated. Please select the relevant channel number: Vic Ch 61, ACT Ch 61, SA Ch 62, WA Ch 63, Qld Ch 64, NSW Ch 65." This suggests Foxtel will no longer have separate bouquets for the different states; instead, Optus will need to authorise the smart cards for the channel relevant to the subscriber's state.

Second observation: There appears to be a (technical, software) problem, possibly major in scope, when they combine Irdeto Version 2 with NDS. A number of pirate groups have been commenting on this. The symptom is quite obvious; all encryption randomly ceases for up to 2 seconds followed by a minimum of 20 seconds CA. This does not occur when NDS is combined (simulcrypt) with Irdeto V-1, or is NDS alone.

February 11: T2 remains on ANZ beam, FEC changed to 3/4 (12.367V, 27.800, 3/4; Foxtel parameters). CAT shows only NDS, but 11 channels are FTA. Total bouquet table (still split into two) appears to be: (a) Austar Test, (b) Austar, (c) Austar NSW, (d) FSWP, (e) Foxtel, (f) Test. Foxtel's multiple state bouquets appear to be gone.

February 12: In morning T2 (12.367V, 27.800, 3/4) channels and PIDs changed, still ANZ beam. Operator label changed from 'SES' to 'Unknown', multiple NIT for pay-TV added, transponder ID set to 32. Now 5 channels (3 TV, 2 radio) - NDS CA only. In evening, beam reset to Australia NA antenna pattern.

February 13: T1Lower (12.287V, 28.199, 1/2) is off; T1Upper (12.322V, 28.220, 1/2) is running at full power (no longer having to back-off for T1Lower); no NIT or PAT. T5 (12.487V, 27.800, 3/4) still without NIT, has added PAT with 3 PMTs but no SDTs: Result? Many IRDs will not load, some that do glitch. One channel is Sydney Ch 9 widescreen (V2315, A2311, P2305), video data rate constant 5.5 MBit/s, next is Melbourne Ch 9 (V2308, A2309, P2307), last is Brisbane Ch 9 (V2313, A2314, P2306)

February 15: T13 (12.398H) channel previously used for Foxtel red card swap out ("SWP") relabelled as "FFC," airing same programming as other 4 FFC channels, all widescreen.

February 16: Multiple NIT for pay-TV transponders has T5 added in 3rd NIT: 14 / T11 (12.305H, 30.000, 3/4) transponder ID is 19; 15 / T5 (12.487V, 27.800, 3/4) transponder ID is 31; 16 / T2 (12.367V, 27.800, 3/4) ID 32. T5 (12.487V, 27.800, 3/4) now has pay-TV NIT, PAT, loading 3 network 9 channels; CAT (CA table) only containing NDS, 3 channels are CA, new PIDs: 1/Ch 9 V1021, A1022, P2306; "422Bri," 2/Ch 9 V1041, A1042, P2307; "424Mel," 3/V1051, A1052, P2305; "425Syd." T11 (12.305H, 30.000, 3/4) Austar Interactive: Data stream problem for game channels music. DVB2000 says it "MPEG Layer II" and then sometimes "MPEG Layer III" (MP3). Data stream apparently telling IRDs audio is in format that it is not.

February 17: T14 (12.438H), Foxtel "HELP" ch now FTA, 15 minute loop, explaining use of new digital services. Demo infers some programmes will have subtitles, some widescreen, some Dolby surround sound. Demo guide includes ABC, SBS, 7, 9, 10. New set-tops shown capable of 16:9 as widescreen or letterbox, cropped to 4:3, and possibly uniquely 14:9 (compromise pioneered by ABC terrestrial DVB-T). T19 (12.688H) added 4 virtual channels, all with same V+A PIDs as test channel (V1091, A1092). New channels labelled ABC, Channel 7, Channel 9, Channel 10 - test cards, CA.

February 18: T2 (12.367V, 27.800, 3/4) SBS West and SBS East now simply SBS; EPGs on both in Sydney time. T5 (12.487V, 27.800, 3/4) Ch x 3 now have working EPGs but Brisbane (not using daylight time) is off 1 hour. T14 (12.438H, 27.800, 3/4) 30 radio chs relabelled "air" with full name in EPG. Note: Neither Foxtel nor Austar at this point using this package (they use T19 [12.638H] which now has 24 radio channels identical to first 24 on T14.)

February 24 & 25: Aurora transponders have at different times been FTA for several hours each. Changes: Channels previously dynamically compressed, video data rates jumped all over. Now all are static +/- 0.1 MBit/s varying from ABC channels (5.3 MBit/s) to Imparja Info Ch31 (1.7 MBit/s). Dynamic compression usually results in lower quality video imaging but gives satellite operator more "bandwidth" to sell so net result of change is probably beneficial. T11 (12.305H, 30.000, 3/4) Austar Interactive switched "Ch2" smart card expiration notice (photo, SF#114, p. 20) from CA to FTA.

February 29: T2 (12.367V, 27.800, 3/4) - EPGs for two SBS channels now corrected to South-eastern and WA (remains only NDS encrypted). T19 (12.638H), all TV and radio channels now switching from CA to FTA as noted previously (after February 10) while channel labelled "Test" does reverse - switching from FTA to CA for similar periods of time. All chs T19 now have correct EPGs for first time: (1) Club, (2) TWC2, (3) A1, (4) Euro[SportNews], (5) Country Music, (6) FTV, (7) FFC, (8) Test + copies.

Optus B3 Update (152E)

February 5: T3 (12.407V, 30.000, 2/3) ch labelled BTv3 (still Irdeto-1) rebroadcast Normal Sky (Aust) ch with screen text "2nd Decoder Test." Same time, Optus C1, ch labelled BTv3, had test card - indicating B3 is not clone of C1.

February 7: On T5, 12.555V (5.635, 3/4), British ITN Queensland "Celebrity" feed 24/7 (see report, p. 28); "I_M_A Backup," constant data rate 7.192 MBit/s. "Finished" (London air version) of this show was on 12.525V (30.000, 2/3) in GlobeCast MCPC; gone by 11th.

February 12: T8 (12.720V, 30.000, 2/3) again running GlobeCast MCPC but contains wrong NIT (for 12.525V); CAT lists only Irdeto-2. PAT loads 14 chs, PID listed is V - audio +1: (1) Sigaram (airing BVN)/V2011, (2) Adhoc (airing SET)/V2021, (3) ERT/V2031, (4) TGN/V2040, (5) TEST/V2051, (6) 3ABN (airing GOD TV, RSA)/V2061, (7) Al Manar (airing Daystar)/V2071, (8) Spare/V2082, (9) Spare/V2083 & A768!, (10) Service 10 (test card)/V2101, (11) Service 11 (blank screen, 2 MBit/s)/V2111, (12) Service 12 (test card)/V2121, (13) Service 13 (test card)/V2131, (14) Service 14 (blank screen, 2 MBit/s)/V2142.

February 13: T8 (above) - Sigaram now CA, 8 & 9 radio chs (8 is Bangkok FM94, 9 Radio Greece). **[B3 Update continues p. 30]**

SatFACTS Pacific/Asian MPEG-2 Digital Watch: 15 March 2004

| Bird | Service | RF/IF & Polarity | # Program Channels | FEC | Msym |
|-------------|---------------------|-----------------------------------|--------------------|-----|---------|
| Thom3/78.3 | SkyChAust | 3695/1455H | up to 3 | 3/4 | 5(000) |
| | Indusvision | 3685/1465H | 1 | 3/4 | 6(830) |
| | Korean Central | 3665/1485H | 1 | 2/3 | 3(367) |
| | TARBS ME mux | 3640/1510H | 12TV, 12 radio | 2/3 | 28(066) |
| | Ch Nepal | 3626/1524V | 1 | 3/4 | 15(556) |
| | Mahar mux | 3600/1550H | 11TV, 1 rad | 3/4 | 26(667) |
| | SE Asia Mux | 3569/1581H | 2+ TV | 3/4 | 12(500) |
| | RR Sat mux | 3551/1600H | 8TV, 10 radio | 3/4 | 13(333) |
| | JAIN TV | 3538/1612V | 1TV | 3/4 | 3(300) |
| | PTV1 + | 3521/1629V | 1TV, 1 radio | 3/4 | 3(333) |
| | TARBS | 3520/1630H | 12TV, 12 radio | 3/4 | 28(066) |
| | TVK Cambodia | 3448/1702H | 1TV | 1/2 | 6(312) |
| | TARBS/Th5 | 3480/1670H | 12 TV+radio | 2/3 | 26(667) |
| | KCTV/Korea | 3424/1726H | 1TV | 3/4 | 3(366) |
| | Thai Global | 3425/1725V | up to 77 | 2/3 | 27(500) |
| InSat 2E/83 | ETV mux | 4005/1145V | 6+ TV | 3/4 | 27(000) |
| | Hyd Dig 2E | 3910/1240V | 1 | 3/4 | 5(000) |
| | Kairali TV | 3699/1451V | 1 | 3/4 | 3(184) |
| | Indian mux | 3643/1507V | 3 | 3/4 | 19(531) |
| | ETV Mux#2 | 3485/1665V | 4+TV | 3/4 | 27(000) |
| NSS6/95E | Sky Bangla | 3430/1720V | 1TV | 3/4 | 6(000) |
| | Bluekiss Adult | 11.078H | 2 TV | 2/3 | 5(0106) |
| | Free-X TV | 12.729V-Australia | 2 TV | 7/8 | 27(500) |
| | Shandong TV | 4070/1080H | 1TV | 3/4 | 6(811) |
| | Euro Bougt | 4000/1150H | 6TV 21r | 3/4 | 28(125) |
| | Sichuan TV | 3946/1204H | 1TV + radio | 3/4 | 4(420) |
| | Reuters News | 3905/1245H | 1TV | 3/4 | 4(000) |
| | WorldNet | 3880/1270H | 4+/28radio | 1/2 | 20(400) |
| | Hubel/HBT | 3854/1296H | 1 | 3/4 | 4(418) |
| | Hunan/SRT | 3847/1303H | 1 | 3/4 | 4(418) |
| | Guan/GDT | 3840/1310H | 1 | 3/4 | 4(418) |
| | In. Mongolia | 3828/1322H | 2 | 3/4 | 8(397) |
| | APTN Asia | 3799/1351H | 1 | 3/4 | 5(632) |
| | Reuters/Sing | 3775/1375H | 1 | 3/4 | 5(631) |
| | Liaoning/Svc2 | 3734/1416H | 1 | 3/4 | 4(418) |
| As2/100.5E | Jiangsu/JXT | 3727/1423H | 1 | 3/4 | 4(418) |
| | Fujian/SET | 3720/1430H | 1 | 3/4 | 4(418) |
| | Qinghai TV | 3713/1437H | 1 | 3/4 | 4(418) |
| | Henan/Main | 3706/1444H | 1 | 3/4 | 4(418) |
| | Egypt/Nilesat | 3640/1510H | 7+ radio | 3/4 | 27(850) |
| | Macau MUX | 4148/1002V | 5TV | 3/4 | 11(850) |
| | Feeds | 4086/1064V | 1 | 3/4 | 5(632) |
| | Dubai MUX | 4020/11430V | 4+ radio | 3/4 | 27(500) |
| | Jilin Sat TV | 3875/1275V | 1 | 3/4 | 4(418) |
| | Shanghai BN | 3846/1304V | 1 | 3/4 | 4(800) |
| | HeiLongJian | 3834/1316V | 1 | 3/4 | 4(418) |
| | JSTV | 3827/1323V | 1 | 3/4 | 4(418) |
| | Anhui TV | 3820/1330V | 1 | 3/4 | 4(418) |
| | Shaanxi/QQ | 3813/1337V | 1 | 3/4 | 4(418) |
| | Guan/GXTV | 3806/1344V | 1 | 3/4 | 4(418) |
| As3S/105.5E | Fashion TV | 3795/1355V | 1 | 3/4 | 2(626) |
| | 3-ch miniMUX | 3752/1398V | up to 3 | 3/4 | 5(640) |
| | Saudi TV1 | 3660/1490V | 7+ tests | 3/4 | 27(500) |
| | Telstra I-Net | 12.596V | no TV | 5/6 | 30(000) |
| | RR Mux | 3669/1481V | up to 5 TV | 3/4 | 13(333) |
| | Zee bouquet | 3700/1450V | 10TV | 3/4 | 27(500) |
| | Cb News Asia | 3706/1444H | 1TV (1) | 3/4 | 6(000) |
| | BTV World | 3725/1425V | 1TV | 3/4 | 4(450) |
| | Airrang TV | 3755/1395V | 1 | 7/8 | 4(418) |
| | Now TV + | 3760/1390H | up to 8TV | 7/8 | 26(000) |
| | Star TV | 3780/1370V | 7(-)TV | 3/4 | 28(100) |
| | Star TV | 3840/1310H | 7(+)-TV | 7/8 | 26(850) |
| | Star TV | 3860/1290V | 5(+)-TV | 3/4 | 27(500) |
| | Star TV | 3880/1270H | 20(+)-TV | 7/8 | 26(850) |
| | Star TV | 3920/1230H | 4+ 1V | 7/8 | 26(850) |
| Cak1/107.5 | Star TV | 3940/1210V | 6(+)-TV | 7/8 | 26(850) |
| | CNNI | 3960/1190H | 8(+)-TV | 3/4 | 27(500) |
| | StarTV | 3980/1170V | 6-TV | 3/4 | 28(100) |
| | Star TV | 4000/1150H | 8(+)-TV | 7/8 | 26(850) |
| | Sahara digital | 4020/1130V | 8TV | 3/4 | 27(250) |
| | Pakistani TV | 4091/1059V | 4TV, 1 radio | 3/4 | 13(333) |
| | Sun TV | 4095/1055H | 1 | 3/4 | 5(554) |
| | 1VB Mux | 4010/1040H | 3 | 3/4 | 11(230) |
| | CCTV bqt | 4129/1021H | 4(+)-TV | 3/4 | 13(240) |
| | Zee Bqt #2 | 4140/1010V | 8(+)-TV | 3/4 | 27(500) |
| | Indovision (S-band) | 2.535, 2.565, 2.595, 2.625, 2.655 | 33(+)-TV | 7/8 | 20(000) |
| | IndoBqt | 3460/1690H | up to 6 | 3/4 | 28(000) |
| | TPI | 4185/965V | 1 | 3/4 | 6(700) |
| | TVE Asia-Africa | 4160/990H | 1 | 3/4 | 5(632) |
| | Ardeeve | 4144/1006V | 1 | 3/4 | 6(510) |
| T'Kom/108E | Indo Mux | 4080/1070H | 5+ TV | 7/8 | 28(125) |
| | Indostar | 4074/1076V | 1 | 3/4 | 6(500) |
| | SCTV | 4048/1102V | 1 | 3/4 | 6(618) |
| | Indonesian Mux | 4000/1250H | 6+ TV | 3/4 | 26(085) |
| | Satelindo | 3935/1215H | 1 | 3/4 | 6(700) |
| | Bali TV | 3926/1224H | 1 | 3/4 | 4(208) |
| | Indo MUX | 3880/1270H | 3+ TV | 7/8 | 28(121) |

Receivers and Errata

CA (#1, 3); FTA audio #2 (dm)
 Tests June 2003, not permanent
 Global footprint; changes 02/03
 CA + 2 FTA(A1TV, IRB3)
 New 03/03, FTA
 Thai + Indian services; FTA
 MRTV3, MRTV (DM)
 3TV, 5radio currently in use
 PIDs 4132/4133
 frequency change
 Feeds to TARBS Australia and PAS-8
 FTA
 3FTA: TV5, VTV4, ATN Bangla
 Not 24 hour
 FTA (reaches SE Australia)
 Several ETV now here; wide beam
 SCPC, OK R. Aust. wide beam
 SCPC, OK E. Aust. wide beam
 corrections 12/02
 Several new ETV here, Asia beam
 New - November 2002
 Adult; requires cards at sales@bluekiss.biz
 11 594V/SE Asia, 11.543V NE Asia, 12.509H India
 New - October 2002
 FTA TV - radio
 New April 2003
 Was 3923H; sometimes FTA
 FTA; multiple audio services V2360, A2320
 FTA SCPC, teletext, 2 radio
 FTA SCPC, teletext
 FTA SCPC, radio APID 81
 FTA #1 Mongolian, #2 Mandarin
 Sometimes FTA; also 3895Vt
 FTA & CA
 FTA SCPC, radio APID 256
 FTA SCPC, teletext, radio APID 81
 FTA SCPC, + radio APID 80
 FTA SCPC, + 2radio (APID 80)
 FTA SCPC, + radio
 Thru TARBS Aust. occ. FTA
 5 chs TV, FTA, some tests
 FTA SCPC feeds
 FTA, sometimes includes sport
 FTA SCPC, + radio
 V1110, A1211 + 2 radio, FTA Jan 2003
 FTA SCPC
 FTA SCPC, + radio
 FTA SCPC + radio
 FTA SCPC, radio APID 81
 FTA SCPC, radio APID 257
 FTA as of May 1, 2003
 Sun-TV, Surya TV, KTV (FTA)
 FTA MCTC, Ymen, MBC EUROsport tests
 Signal useful for dish testing - no TV
 Bluekiss adult here, CA cards sales@bluekiss.biz
 Mediaguard + Conax CA, 2 occ FTA
 New September 2003, English + V1160, A1120
 Bangladesh TV FTA started early March 2004
 FTA SCPC, New PIDs V3601, A3606 June 2003
 CA + NOW, B'berg, Indus Music, MTA FTA
 NDS CA (Pace DVS211, Zenith)
 NDS CA (Pace DVS211, Zenith)
 NDS CA (Pace DVS211, Zenith)
 NDS CA (Pace DV211, Zenith) In transition 06-2003
 Star Sports Asia (+), #FTA NTSC; V512, A640 English
 NDS CA as above, may NOT be operational
 PowVu CA, new SR Apr 29
 NDS CA; Star News India FTA VPID 514, APID 648
 NDS CA w/ 4(Chinese) FTA
 New Sr September
 new Sr, channels, Nov 2003
 "History Channel" testing SCPC
 MATV Chinese movies FTA; + CA
 moved from 4115
 Mediaguard (SECA) CA
 NDS CA using RCA/Thomson,
 Pace IRDs, 2.535 has 2 FTA
 also 3586H/17.500, 3496H/19.615
 FTA SCPC, NT/NC only
 New August 2003
 change from 4055V; FTA SCPC
 Global TV - erratic new FEC 06/03
 FTA (new 06-03); V2201, A2202
 FTA SCPC; NT, New Caledonia only
 unstable platform - not always there
 test card - only - reported
 FTA, may not be active full time
 FTA; Sr change 01/03; erratic

| Bird | Service | RF/IF & Polarity | # Program Channels | FEC | Msym |
|----------|------------------|------------------|-----------------------|---------|----------|
| | GlobalMUX | 3760/1390H | up to 11 TV? | 7/8 | 28(121) |
| | Brunei/Sing | 3733/1417H | 1TV | 3/4 | 6(000) |
| | TBN/Trinity | 3727/1423H | 1 TV | 3/4 | 3(000) |
| | RCTI | 3473/1677H | 2 | 3/4 | 8(000) |
| As4/122E | STV mux | 3880/1270H | 8 or more | 3/4 | 26(500) |
| Ic3/128 | Miracle Net | 3996/1154V | 3 up to 6 | 5/6 | 22(000) |
| | Asian bqt | 3960/1190V | up to 8 | 7/8 | 30(000) |
| Ic2A 154 | Cnet | 3880/1270V | up to 12 | 3/4 | 30(000) |
| | BYU tests | 3915/1245V | 2 | 3/4 | 3(703) |
| MeasS2 | Astro Mux | 11.602H | up to 17TV | 3/4 | 41(500) |
| | VTV MUX | 11.522V | 3 TV | 3/4 | 9(766) |
| B3/152 | Optus tests | 12.407V | 4+ TV, 4+ radio | 2/3 | 30(000) |
| | GlobeCast tests | 12.501H | MultipleTV, radio | 2/3 | 30(800) |
| | GlobeCast tests | 12.525V | 8+ TV, radio | 2/3 | 30(000) |
| | GlobeCast Main | 12.657V | 8+ TV | 2/3 | 30(000) |
| | GlobeCast tests | 12.720V | 8+TV, radio | 2/3 | 30(000) |
| C1/156E | Optus testbed | 12.287V/T1L | 9tv, 24 radio | 1/2 (*) | 28(199*) |
| | Optus test bed | 12.322V/TU | mixed | 1/2 (*) | 28(220) |
| | Unknown test bed | 12.367V/T2 | TV | 2/3 | 27(800*) |
| | Aurora Biz | 12.407V/T3 | TV + radio | 2/3 | 30(000) |
| | Pay-TV | 12.447V/T4 | varying # TV services | 3/4 | 27(800) |
| | Unknown test bed | 12.487V/T5 | TV | 3/4 | 23(333) |
| | Pay-TV | 12.567V/T7 | varying # TV services | 3/4 | 27(800) |
| | Pay-TV | 12.607V/T8 | varying #TV services | 3/4 | 27(800) |
| | Pay-TV | 12.647V/T9 | varying #TV services | 3/4 | 27(800) |
| | Austar | 12.278H/T11 | varying TV + data | 3/4 | 30(000) |
| | Pay-TV | 12.358H/T12 | varying #TV services | 3/4 | 27(800) |
| | Pay-TV | 12.398H/T13 | varying #tv services | 3/4 | 27(800) |
| | Pay-TV | 12.438H/T14 | varying #TV services | 3/4 | 27(800) |
| | Pay-TV | 12.478H/T15 | varying #TV services | 3/4 | 27(800) |
| | Pay-TV | 12.518H/T16 | varying #TV services | 3/4 | 27(800) |
| | Pay-TV | 12.558H/T17 | varying #TV svcs | 3/4 | 27(800) |
| | Pay-TV | 12.638H/T19 | varying #TV services | 3/4 | 27(800) |
| B1/160 | Occ. feeds | 12.380H | 1 TV - * | 3/4 | 6(111) |
| | Occ. feeds | 12.384V | 1 TV - * | 3/4 | 6(111) |
| | Net 7 service | 12.397H | 1 | 3/4 | 7(200) |
| | Net Ten | 12.353H | 1TV + 1 radio | 3/4 | 5(100) |
| | Imparja mux | 12.379H | 2TV + 8 radio | 3/4 | 5(424) |
| | 7 digital feeds | 12.397H | 1TV | 3/4 | 7(200) |
| | Feeds to NZ | 12.411V | 1 TV | 3/4 | 6(111) |
| | SBS Mux | 12.420H | 3+ TV, 2+ radio | 5/6 | 12(600) |
| | TVNZ DTH | 12.456V | 5+TV | 3/4 | 22(500) |
| | Nine Net | 12.512H | 1 TV typ. | 3/4 | 5(632) |
| | Sky NZ | 12.519/546V | 7TV/7TV | 3/4 | 22(500) |
| | Sky NZ | 12.581/608V | 6TV/6TV | 3/4 | 22(500) |
| | Sky NZ | 12.644/671V | 9TV | 3/4 | 22(500) |
| | ABC HDTV | 12.603H | 5TV | 7/8 | 14(300) |
| | Sky NZ | 12.707/733V | 8+TV | 3/4 | 22(500) |
| | Mix 106.3 | 12.574H | 1 radio + data | 3/4 | 1(851) |
| P8/166 | TARBS3 | 12.326H | 13TV + radio | 3/4 | 28(066) |
| | TARBS | 12.526H | 13TV + radio | 3/4 | 28(066) |
| | TARBS2 | 12.606H | 13TV + radio | 3/4 | 28(066) |
| | TARBS5 | 12.646H | testing | 3/4 | 28(066) |
| | TARBS4 | 12.726H | 13TV + radio | 3/4 | 28(066) |
| | JED1/TVB | 12.686H | 11+ TV | 3/4 | 28(126) |
| | ABC A-P | 4180/970H | 2TV, 2 radio | 3/4 | 27(500) |
| | Disney Pac | 4140/1010H | typ 6 TV | 5/6 | 28(125) |
| | NHK Joho | 4060/1090H | 7TV, 1 radio | 3/4 | 26(470) |
| | FOX Mux | 4040/1110V | up to 5TV | 7/8 | 26(470) |
| | NET + | 4121/1029V | 1 TV | 3/4 | 4(774) |
| | ESPN USA | 4020/1130H | 8+TV, data | 3/4 | 26(470) |
| | Discovery | 3980/1170H | 8 typ. | 3/4 | 27(500) |
| | CalBqt/Pas8 | 3940/1210H | up to 3+ FTA | 7/8 | 27(690) |
| | CNBC HK | 3900/1250H | up to 7TV | 3/4 | 27(500) |
| | FilipinoMUX | 3880/1270V | up to 8TV+radio | 5/6 | 28(694) |
| | TaiwanBqt | 3860/1290H | 12TV + 30 r | 5/6 | 28(000) |
| | CCTV Mux | 3829/1321H | up to 4 + 1 radio | 3/4 | 13(240) |
| | TVBS-N | 3836/1314V | 1FTA, 4+ CA | 3/4 | 22(000) |
| | EMTV PNG | 3808/1342V | 1 + 2 radio | 3/4 | 5(632) |
| | CNNI | 3780/1370H | 3, up to 5 TV | 3/4 | 25(000) |
| | Discovery Asia | 3764/1386V | Up to 6 TV | 3/4 | 19(850) |
| | MTV | 3740/1410H | 8 | 2/3 | 27(500) |
| | ABS-CBN APT | 3712/1438V | 1 | 3/4 | 3(712) |
| P2/169E | Off-shore rigs | 12.281V | 2+ TV, radio | 2/3 | 27(500) |
| | WA PowVu | 12.637(5)V | 4TV, 8 radio | 1/2 | 18(500) |
| | NBN-TV | 4126/1024V | 1TV | 3/4 | 3(075) |
| | TARBS | 4090V/1060V | 9TV + radio | 3/4 | 21(000) |
| | Feeds | 4037/1113H | 1+ TV | 2/3 | 6(620) |
| | Feeds | 4027/1123H | 1+TV | 2/3 | 6(620) |
| | Feeds | 4023/1127V | 1+TV | 3/4 | 13(328) |
| | Feeds | 3966/1184V | 1 | 2/3 | 6(620) |
| | Feeds | 3957/1193V | 1 | 2/3 | 6(620) |
| | Feeds | 3929/1221V | 1 | 3/4 | 10(850) |
| | Feeds | 3912/1238V | 1 | 2/3 | 6(620) |
| | Feeds | 3898/1252V | 1 | 2/3 | 12(000) |
| | Middle East | 3836/1314V | 4 typ | 3/4 | 13(331) |
| | Feeds | 3803/1347V | 1 | 3/4 | 6(000) |
| | PAS/BBC mux | 3744/1406V | 3 | 3/4 | 21(500) |

Receivers and Errata

test cards (11), new Sr/FEC 01-03
 FTA; Singapore 23hrs, Brunei 1 hr, Brunei V1200
 New PIDs 10-03; reload
 FTA SCPC, Australia, New Caledonia, some English
 First TV mux to appear this new bird; erratic service
 PowerVu; some FTA (Ch. 1 & 3)
 CA & FTA NTSC; Japan, Taiwan
 Cnet (Taiwan) tests; not full time
 Erratic service, very strong NZ and Australia
 Aust East beam - 3 FTA + 14 CA
 WA only? Skew path, intended Asia
 now differs from 12.407 C1; tune ch FTA
 Nat B beam; unusual parameters (see p. 30, here)
 GlobeCast
 Globecast "home" 1 February; temporary?
 Testing - not fulltime - erratic (GlobeCast)
 testing as of late Feb, * - may be temp #s; on and off
 testing as of late Feb; * - may be temporary numbers
 Tests, not always operational, NDS only? SBS
 NZ (90cm) + Australia (Only svt left on NZ; C1)
 Australia NA only (leakage to Norfolk, New Cal)
 Australia NA only ((cage); 9-Nct x 3 widescreen
 Australia NA only (leakage to Norfolk, New Cal)
 Australia NA only (leakage to Norfolk, New Cal)
 Australia NA; has unique NIT
 CA, subscriptions available Australia, Norfolk
 CA, subscriptions available Australia, Norfolk
 CA, subscriptions available Australia, Norfolk
 CA, subscriptions available Australia, Norfolk
 CA, subscriptions available Australia, Norfolk
 CA, subscriptions available Australia, Norfolk
 "Home" CA, subscription available Australia, Norfolk
 CA, subscription available Australia, Norfolk
 * - plus 12.451H, 12.460H
 * - plus 12.293V, 12.402V, 12.411V
 Full schedule less commercials - links
 Possibly feed to Tasmania?
 PIDs vary, also try 12.360, 12.370
 occ. digital feeds; typ fla
 Often NTSC; USA-Australia-NZ
 Also 12.420H same params; SBS HDTV + w-s
 FTA 4 channels (TVNZ x 4); +Maori, NHK here
 testing digital feeds; Sr may vary
 NDS CA, subscription available NZ
 NDS CA, subscription available NZ
 NDS CA, subscription available NZ
 also 12.626, 643, 670, 688, & 706H
 NDS CA, subscriptions available NZ
 Radio SCPC is "cover" for high speed data
 TPG/Eurodec MDS CA, occ FTA
 TPG/Eurodec MDS CA, 1 radio FTA
 TPG/Eurodec MDS CA
 TPG/Eurodec MDS CA; 2 TV FTA
 TPG/Eurodec MDS CA
 June 2002-Irdeto-2 CA
 Dateline west; east PAS2, 3901
 PowVu CA
 PowVu CA & FTA; subscription available
 was PAS-2, previously 3992Vt
 NET25 + FTA; new PIDS April, reload
 PowVu CA; ch 11 DCP-CCP bootload, new FEC
 PowVu/CA (some audio FTA)
 PowVu CA & FTA (EWIN +)
 NDS CA (6 channels); one testcard FTA
 Myx FTA V1960, A1920 + radio FTA
 Mixed FTA & CA, STC FTA +; Hallmark gone
 PowVu FTA, replaces PAS-2 svt
 Difficult because of CCTV cross pole
 was As2, PowVu CA
 PowerVu
 PowerVu; Asian MUX, new parameters Nov '03
 # 8 MTV China FTA V289, A290; rest CA
 24/7 English track 2 news; V4096, A4099 11-03
 PowVu CA, WIN, ABC NT
 PowVu CA, WA only - D9234
 3m up (NZ), 1.8m up Australia
 Occ FTA (Chile +); BIG power reduction Nov.
 Sporting feeds (occasional)
 Sporting feeds from USA (occasional)
 feeds to (USA) pay-TV
 PowVu (FTA) occ feeds
 PowVu (FTA) occ. feeds
 PowVu (FTA) occ sport feeds
 PowVu (FTA) occ. feeds
 PowVu (FTA) occ. feeds
 Irdeto 2 CA - subscriptions avail; Strong Tech
 PowVu (FTA) occ sport feeds
 BBC, test card FTA, others nominally CA



OK ...
so why should
YOU
advertise
in SatFACTS???

"My friend and I have been reading SatFACTS from day one and I have a complete set. Each month SatFACTS brings us new challenges and we are inspired to educate ourselves by experimenting with new concepts. Each time, we learn something from our mistakes and our successes. And when we fail, we look forward to the next issue to help



- ☒ **REASON ONE: Readership loyalty.** 88% of all subscribers renew - more than 300 (out of 9,900 readership impressions per issue) have been with us from Vol. 1, Number 1!
- ☒ **REASON TWO: Enquiring minds.** SatFACTS readers are the leading edge sellers, installers, fix-it-folks for C, Ku, S-band installations throughout the Pacific and Asia.
- ☒ **REASON THREE: Volume.** SatFACTS readers sell equipment. To others. And they buy that equipment from firms who advertise in SatFACTS!

"Your SF#105 report on reviving once-proud larger dishes, and correcting their deformities, was exceptionally well done. I have been in satellite for a decade, have strung dishes in the past but never have I see it so clearly explained."



(03-04)

SatFACTS is your partner in industry growth

- 1 full page - as low as A\$338 monthly
- 1/2 page - as low as A\$219 monthly
- 1/4th page - as low as \$142 monthly
- 1/8th page - as low as A\$93 monthly

**A full "advertising rate sheet" available
FAX or mail; send us your send-to
details at e-mail skyking@clear.net.nz
or via fax 00-64-9-406-1083.**

| Bird | Service | RF/IF & Polarity | # Program Channels | FEC | Msym |
|-------------|-----------------|------------------|--------------------|-----|---------------|
| (PAS2/169E) | Adventists.tv | 4040/1010H | 1 | 2/3 | 5(900) |
| | Feeds | 3868/1182H | 1 | 2/3 | 6(620) |
| | Feeds | 3939/1211H | 2 (typ NTSC) | 2/3 | 6(620)/7(498) |
| | Cal PowVu | 3901/1249H | up to 8 | 3/4 | 30(800) |
| | HK bouquet | 3850/1300H | up to 8 | 2/3 | 24(900) |
| 1804/176E | occ feeds | 3776/1374H | 1 typ | 3/4 | 5(560) |
| | Korean Bgt | 3771/1379H | 1 | 3/4 | 9(041) |
| | IPSTAR | 12.619H | 1 | 2/3 | 25(220) |
| | Tests-NZ beam | 12.646H | 1 | 3/4 | 22(418) |
| | RFO Poly | 4027/1123R | 1TV | 3/4 | 4(566) |
| 1701/180E | TNTV | 11.060&11.514 | 9 | 3/4 | 30(000) |
| | Canal-Sat | 11.610H | 16TV, 1 radio | 3/4 | 30(000) |
| | TVNZ | 4195/955RHC | 1 | 3/4 | 5(632) |
| | TVNZ/RBC | 4186/964RHC | 1 | 3/4 | 5(632) |
| | TVNZ | 4178/972RHC | 1 | 3/4 | 5(632) |
| | AFRTS DTS | 4175/975L | 3 TV, 3 radio | 2/3 | 3(680) |
| | TVNZ/Aptn | 4170/980RHC | 1 | 3/4 | 5(632) |
| | TVNZ/feeds | 4161/989RHC | 1 | 3/4 | 5(632) |
| | RFO-Canal+ | 4086/1064L | 4TV, radio | 5/6 | 12(041)) |
| | TVNZ/feeds | 4052/1098RHC | 1 | 3/4 | 5(632) |
| | TVNZ feeds | 4044/1106R | 1 | 3/4 | 5(632) |
| | NZ Prime TV | 4024/1126L | 1 | 2/3 | 6(876) |
| | NBC to 7 Oz | 3960/1190R | 1 | 7/8 | 6(447) |
| | WorldNet | 3886/1264R | 1TV, 37 radio | 3/4 | 25(000) |
| | Ioarna | 3772/1378L | 1 | 3/4 | 4(566) |
| | TVNZ | 3846/1304R | 1 | 3/4 | 5(632) |
| | NBA (Barker) Ch | 3803/1347R | 1 | 3/4 | 6(111) |
| | 10 Australia | 3769/1381R | 4 | 7/8 | 20(000) |
| | USA feeds | 3749/1401R | 47 | ? | 26(400) |
| | NSS-5.177W | 3745/1405R | none-date | 3/4 | 44(995) |

Receivers and Errata

New December 2003, 24/7 "Hope Cha."
FTA (occ sport); also try 3863.Sr6.100
FTA-tyt NTSC-occ sport, live Shuttle
PowVu CA + FTA (BBC gone)
was 4148Vt; some FTA
occ feeds, typ FTA; also Sr 5 600
Korean MUX, reload 02/03
Tests, late May start; also 12.646H
Testing possible data links; June 2003
SE spot beam; was 4027LHC
east spot; 10TV + r each, vertical pol.
1+ FTA, MediaGd "2", + 10.975 weaker
DMV/NTL early vers., occ feeds, typ ca
DMV/NTL early vers., occ feeds, typ ca
DMV/NTL early vers., occ feeds, typ ca
DTS Direct to Sailors; audio previously FTA - no more
DMV/NTL early vers., occ feeds, typ ca
DMV/NTL early vers., occ feeds, typ ca
east hemi 20.5 dBw +; new Sr
DMV/NTL early vers., occ feeds, typ ca
SCPC, mixed CA and FTA feeds
PowVu CA; Auckland net feeds
CA, Leitch encoded
New PIDs Dec 03 very strong NZ, Pacific
FTA SCPC; East Hemi Beam-Tahiti
SCPC, mixed CA & FTA feeds
NBA feeds - probably CA - new Nov 2003
PowVu CA & TBN-JCTV FTA
16-QAM (not MPEG-2 compatible)
Data only but useful for dish alignment, top Sr check

MPEG-2 DVB Receivers: (Data here believed accurate; we assume no responsibility for correctness!)

Aston Simba 201. Embedded SECA (Zee, Canal +); review SF#97. MediaStar 61-2-9618-5777.
AV-COMM R3100. FTA, excellent sensitivity (review SF May 1998); new version Sept. '99. Av-COMM P/L, 61-2-9939-4377.
AV-COMM R3100(A). FTA, good sensitivity, ease of use exc (review SF May 2002). See above contact.
Benjamin DB6600-CL. FTA, Fostel/Austar w/CAM+card. Autosat Pty Ltd 61-2-9642-0266 (review SF#72)
Coship 3188C. Review SF#107. Blind search FTA rcvr. Presently available from Satlink NZ www.satlinknz.co.nz. Are there no other distributors handling this receiver, anyone in the world???

eMTEch eM-100B (FTA), eM-200B (FTA + Ch2), eM210B (FTA + 2xCI + positioner); KanSat 61-7-5484 6246 (review SF#89)
Humax F1-CL. Primarily sold for TRI (Australia), does (limited) PowerVu (not Optus Aurora approved).
Humax ICR1 6400 (Z). Embedded Irdeto + 2 CAM slots; initial units had NTSC glitch, now fixed. Widely available, SF#76.
Humax IRC1 5410 (Z). Adaptable version capable of holding multi-CA systems (SF#98, 99). Widely available.
Hyundai-TV/COM. HSS100B/G (Pacific), HSS-100C (China) FTA. Different software versions; 2.26/2.27 good performers, 3.11 and those with Nokia tuners also good; later 5.0 not good. SATECH (V2.26)
Hyundai HSS700. FTA, PowerVu, SCPC/MCPC. Review SF March 1999. Kristal Electronics, 61-7-4788-8902.
Hyundai HSS800CI. FTA, Irdeto (with CAM) + other CA systems, PowerVu, NTSC. Kristal Electronics, above; review SF#63.
INNOCIA IDS3088. Review SF#111. Blind search FTA receiver. High quality IRD; no known source in Pacific but apparently available in Singapore.
ID Digital CI-24 Sensor. New August 2003; new lower noise tuner, extra sensitivity; CI Interface slot Irdeto 1 & 2; review SF#109. Sciteq 61-8-9409-6677.
MediaStar D7. FTA, preloaded w/ known services, exc. software (review SF July 1998). MediaStar Comm. 61-2-9618-5777
MediaStar D7.5. New (May 00) single chip FTA; review June 00 SF. MediaStar Comm. Int. 61-2-9618-5777
MediaStar D10. FTA and Irdeto embedded CA. VG receiver; see review SF#96, August 2002. Contacts immediately above.
MultiChoice (UEC) 660. Essentially same as Australian 660, not grey market contrary to reports. Sciteq tel 61-8-9306-3738
Nokia "d-box" (V1.7X). European, FTA, may only be German language, capable of Dr. Overflow software. SF#95, p. 14.
Nokia 9200/9500. When equipped with proper software, does Aurora, pay-TV services provided software has been "patched" with "Sandra" or similar program. See SF#95, p. 14. SF#96 p. 15. [SatWorld 61-3-9773-9270](http://www.satworld.com.au) (www.satworld.com.au)
Pace DGT400. Originally Galaxy (Now Foxtel+Austar). Irdeto, some FTA with difficulty (Foxtel Australia 1300-360818). UECs replaced; Sept 18 (2003) "drop-dead" day; all were to have been "turned off" on that date (in fact, those with V1.13 CAMs may still be working).
Pace DVR500. Original DGT400 modified for NBC (PAS-2)/RSA use, with CAM equivalent to DGT400 but more reliable.
Pace "Worldbox" (DSR-620 in NZ). Non-DVB compliant NDS CA including Sky NZ, no FTA; similar "Zenith" version (see SF#115, p. 15).
Panasat 520/630/635. MCPC FTA, Irdeto capable, forerunner UEC 642, 660. Out of production, spares fax +27-31-593-370. No longer wotr with Austar/Foxtel.
Panasonic TU-DS10. FTA + Irdeto CA; one of 2 IRDs approved by Optus for Aurora, but never available in Australia.
Phoenix 111, 222. PowVu capable, NTSC, graphics, ease of use. (111 review SF#57). SATECH (below)- 222; terminated
Phoenix 333. FTA SCPC, MCPC, analogue + dish mover. Detailed SF review SF#51. SATECH 61-3-9553-3398.
Pioneer TS4. Mediagard CA (no FTA), embedded Msym, FEC, only for Canal+Satellite (AntenneCaf +687-43.81.56)
PowerVu (D9223, 9225, 9234). Non-DVB compliant MPEG-2 unless loaded with software through ESPN Boot Loader (see below). Primarily sold for proprietary CA (NHK, GWN+ PAS-2 Ku, CMT etc). For service only - call Scientific Atlanta 61-2-9452-3388. For revision model D9850, see Scientific Atlanta (below).
PowTek. Blind Search Chinese sourced, field tests rate it highly. Source jason@adigitalife.com
Prosat 2102S. FTA SCPC/MCPC, NTSC/PAL, SCART + RCA. Sciteq 61-8-9308-3738.
SatCruiser DSR-101. FTA SCPC/MCPC, PowVu, NTSC/PAL. (Skyvision Australia 61-3-9888-7401, Telsat 64-6-356-2749); no longer available.
SatCruiser DSR-201P. FTA SCPC/MCPC, PowVu, NTSC/PAL, analogue, positioner - (Skyvision - see above); no longer available.
SATWORK ST3618. Blind search FTA receiver. Fast search, problems, especially in "memory-filing" system; review SF#111. Available DMSi at tim@dmsiusa.com.
SATWORK ST3688. Blind search, 3000+ ch memory, multi-format RF modulator; improved version 3618. Review SF#113; available DMSi (above).
Scientific Atlanta D9223, D9225; Orig. PowerVu, superseded Dec 2003 by D9850. Commercial receiver, available TVO 61-2-9281-4481, John Martin
Strong Technologies SRT2620. SCPC, MCPC FTA, exc sensitivity, ease use, programming. Review SF#91 (ph. below).
Strong SRT 4600. SCPC, MCPC, PowerVu; exc graphics, ease of use, review SF#64. Strong Technologies 61-3-8795-7990.
Strong 4800. SCPC, MCPC, embedded Irdeto+ CAM slots, Aurora. Strong Technologies 61-3-8795-7990.
Strong 4800 II. SCPC, MCPC CAM slots x 2 for Aurora +, Zee, Canal +. Strong Technologies (above); review SF#103.
Strong 4890. SCPC, MCPC, 30GB PVR, 2 CAM slots, DiSEqC 1.0, 1.2 (review SF#84); Strong Technologies, # above.
UEC Atlas/Titan. New July 2003, replacing DGT400 for Austar. No SCART, L-band loop; also available Rural Electronics 61-2-6361 3636.
UEC642. Designed for Aurora (Irdeto), approved by Optus; w/new software, C-band FTA; faulty P/S. Norsat 61-8-9451-8300.
UEC660. Upgraded UEC642, used by Sky Racing Aust., Foxtel, limited FTA. (Nationwide - 61-7-3252-2947); P/S problems.
UEC700/720. Single chip Irdeto built-in design for Foxtel; unfriendly for FTA. Power supply problems, seldom sold to consumers; propensity to fall off back of trucks.
Winersat DigiBox 200. C + Ku basic receiver but includes Teletext for NZ TVOne, 2 VBI. Satlink NZ, fax 64-9-814-9447; long term teltext problems.

Accessories:
Aurora smart cards. MYCRYPT (Irdeto V2) cards now available (Oct. 2003), Sciteq 61-8-9409-6677.
PowerVu Software Upgrade: PAS-8, 4020/1130Hz, Sr 26.470, 3/4; pgm ch 11 and follow instructions (do not leave early!)

WITH THE OBSERVERS

AT PRESS DEADLINE

Predictably - WIN & ABC NT have left B3 12.720V. On 12.525V (only), Daystar PIDs changed to (decimal) V2101, A2102, PCR 2101. China has announced launching of ten new satellites during 2004; no details yet. Telstar 18/ApStar 5 with 19-C and 8-Ku scheduled to 138E late April; C-band map p. 28, here.

AMC-10/146W: Few reports - perhaps because nobody is looking! C and Ku band testing here, bird will move to 135W around 1 May or before. Should be identifiable C-band signals here (not full time, however - beacons at 3700.5H and 4199.5V, viewable on SpecAn or analogue receiver. - see p. 6). "Test carriers logged 3720V, 3760V, 3800V, 3840V, 3880V." (DN, Hawaii)

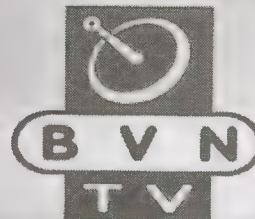
AsiaSat 3S/105.5E: "BTV World (Bangladesh) first noted testing February 26, 3725V, Sr 4.450, 3/4 FTA VPID 308, APID 256; now regular schedule." (Manny) (Editor's note: News release from AsiaSat 23 February reported, "(this) Bangladesh service will provide daily broadcasts of news, current affairs, drama and entertainment, cultural and educational programmes to serve audiences in the region." The AsiaSat 3S footprint includes more than 50 countries from New Zealand to the Middle East and the Commonwealth of Independent States [CIS - Russia].)

AsiaSat 4/122E: "CBN (USA version) was testing (FTA) on 3880Hz, Sr 26.500 (was 26.667 initially), 3/4 but appears to have shut down. No regular video on this satellite - a shame given the wide coverage pattern." (Axial, Victoria) "MTA International (was) FTA mid-February 4162H, Sr 3.100, 7/8 (VPID 3001, APID 3011)." (Bill Richards, Australia)

NSS5/177W: "Significantly strong data carrier 3745RHC (Sr 44.995, 3/4) is a test of your IRD's top symbol rate capability and measurement point for moving your dish further east such as to 146W AMC-10 now testing." (Henry L, NZ) (Editor's note: This is on a west-hemi beam, a good "reference point in the sky" for all west of dateline)

NSS6/95E: "Blue Kiss and Blue Kiss Express on 11.078H, Sr 5.010, 2/3 have VPID49/APID 50 and V65/A66 using Viaccess 2.5; Australian beam." (Bill Richards, Australia) "Free-X TV and Back Room (TV; aka Sexz TV) have begun regular scheduled service on 12.729V." (Shanty) (Editor's note: Recent PIDS are 513/514 and 1281). "Free-X TV seen 12.509H, Sr 2.441, 3/4 on Indian beam mid February." (Golan, Sri Lanka) "Six channels, Middle East, 12.647V, Sr 21.000, 3/4; 6 more 12.688H, Sr 21.000, 3/4." (FM, Australia)

Optus B3/152E: "Daystar TV on 12.525V (GlobeCast; VPID 5169, APID 5170) is a 30 day test, scheduled to shut down March 20th unless renewed." (DP, Victoria) (Editor's note: This is another of the American based religious/family TV services.) "In mid-February, GlobeCast shifted their experimental transponder from T8 to T12 (12.501H, Sr 30.800, 3/4, on National B beam). Having done this, a new (temporary) feed consisting of ABC NT, WIN TV and 3 NT radio services then appeared on the Australia + NZ beam,



GlobeCast Australia apologise
for this interruption to Transmission.
Normal service will be resumed
As Soon As Possible.

BVN-TV relayed by GlobeCast (B3, 12.658V) is surprisingly popular Dutch-Flemish channel combining output of several terrestrial services into one international satellite channel. No, the relay is not always functional (see p. 31).

12.720V, Sr 30.000, 2/3. It did not last long, however!" (IF, Qld). (See further updates starting p. 22)

Optus C1/156E: (see update starting p. 20)

Palapa C2/113E: "Radio Television Brunei, part of day service, 3733H, has new VPID: 1200." (Buddy H, Sarawak) PanAmSat PAS2/169E:

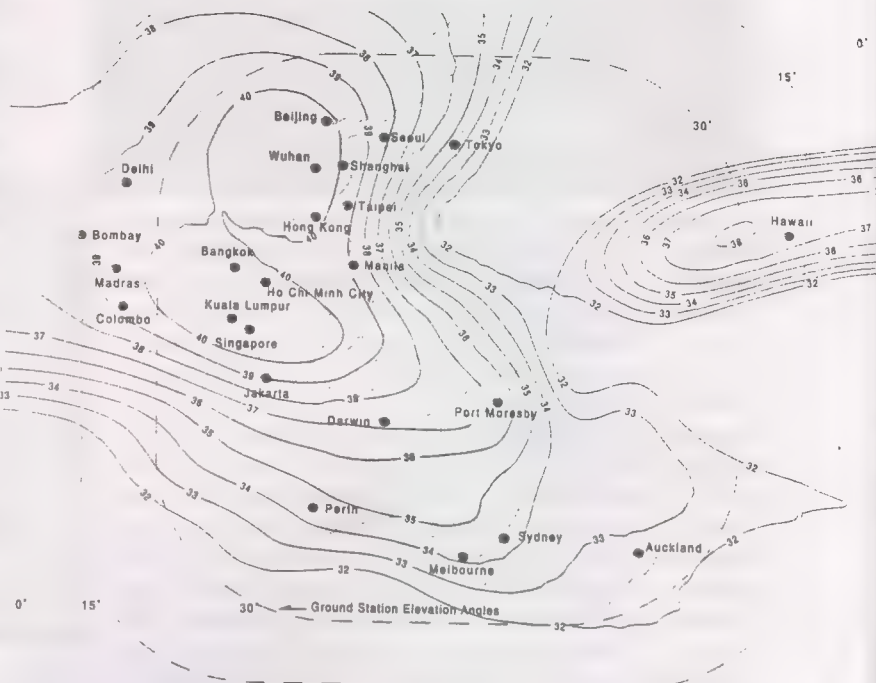
PanAmSat PAS8/166E: "Videoland movies, ex-Hallmark, has shut down on 3860Hz; transponder is active but this channel is mostly test card with occasional feeds. Sadly missed as only FTA movie service in Pacific." (NKL, PNG)

Soapbox: "Fiji TV's move to satellite will be partially paid for with F\$1,000 range fee for each DTH system package they supply to 'out-islanders' who subscribe - although no announcement of monthly service fees at this stage." (Hannah, Fiji) "Explosive growth in DSL/ADSL in Australia is causing restudy by Telstra and Optus of whether with this delivery medium there is a business plan here to compete with their own already available (some areas) cable TV, or, satellite TV. Biggest roadblock is user caps on thruput - as long as users are charged for total data delivered on a daily/weekly/monthly basis, TV via DSL/ADSL is a non starter. Existing Telstra/Optus lines typically are bandwidth/speed restricted to around 1.5 Mbps whereas for VHS quality video delivery, most agree 4 Mbps is minimum thruput speed. If there is a new business plan here, which I doubt, it is not yet apparent." (Raymond T, Sydney) "Superbird 6 (Japan) is scheduled to

WITH THE OBSERVERS: Reports of new programmers, changes in established programming sources are encouraged from readers throughout the Pacific and Asian regions. Information shared here is an important tool in our ever expanding satellite TV universe. Photos of yourself, your equipment or off-air photos taken from your TV screen are welcomed. TV screen photos: If PAL or SECAM, set camera to f3.5-f5 at 1/15th second with ASA 100 film; for NTSC, change shutter speed to 1/30th. Use no flash, set camera on tripod or hold steady. Alternately submit any VHS speed, format reception directly to SatFACTS and we will photograph for you. Deadline for April15th issue: April 3 by mail or 5PM NZT April5th if by fax to 64-9-406-1083 or Email skyking@clear.net.nz.

ApStar 5 replacing ApStar 1 at 138E

The present, well aged, Apstar 1 at 138E is to be replaced by a C + Ku band satellite (alternately known as Telstar 18) with 16 Ku and 38 C (including extended C-band, below 3.7 GHz) transponders; scheduled launch date last week in April by Russian Zenit 3. If they maintain this schedule, testing at 138E as early as May 12-15. Unfortunately there is almost no present activity from Apstar 1 at 138 E (3677H, China Stock Channel, Sr 3.616, 3/4; feeds 3868H, 4.290, 3/4 and SBN21, Sr 3.000, 1/2; 2100-2300HKT). The good news is semi-evident from the projected footprint coverage map to right; C-band 34 dBw (and better) over all of Australia (1.8m threshold), New Zealand 33 dBw (2m threshold). Apstar 1A (134E) has a heavy load of (mainland) China services including cable TV (Cryptoworks CA) and a selection of CCTV channels (3,5,6,8,Kids, News) not available elsewhere. Reports please to skyking@clear.net.nz.



Help! Get me off of satellite!!!

The "realism" of "Reality TV" reached a new high (via satellite) and a new low (in programme content) during February as British commercial network ITN isolated a group of British wanta-be-famous folks in a remote (they said) Queensland jungle and then 24 hours a day watched their every move from London (fed via B3, 12.555V) dropping in from time to time to encourage more competition between the participants. "I'm a celebrity - Get me out of here!" afforded British viewers, for a per-call fee, to

"vote" for the next individual to be thrown out of camp until only a pair remained. Nightly (in the UK) the "live coverage" of their plight was refed by ITN through GlobeCast B3 12.525V allowing those with satellite dishes to follow both the 24/7 peek-a-boo cameras and the 4/7 ITN-Live coverage. Perhaps the only real winner was BT that collected millions of pence from viewers calling to "register their votes" night after night, and, ITN that created 4 hours of TV nightly for a week for not much more than the cost of a pair of satellite links. Thank you Mr Murdoch, for "showing us the way" to *classy-television*.



158E with 23 Ku and 4 Ka (18 GHz) transponders on board, April 16." (Crayton) (Editor's note: Russia-CIS plans AM1 to 40E, AM2 to 80E, AM3 to 140E before end of 2004. The 140E could be - but probably will not be - of interest.) "Apstar V/5 to 138E Ku band beam-2 has a most interesting footprint - several 'off in space' (to north-west) 40+ dBw footprints strongly suggesting there will be similar footprints to

south-east (towards eastern Australia and New Zealand) - for every 'puddle footprint in one direction there is usually an equal footprint in the opposite direction - 180 degrees away." (Billy T, NSW) "I have located a pair of Pace DGT400s with TelstraSaturn identification labels inside on the master circuit board. The first is dated 06-06-2001 and the other 15-07-2001. They both have the same service centre label imprinted:

'Service Centre MXR International P/L, Ph 9792 1501. Both receivers came out of a rural NSW public dump - perhaps 100 receivers in all, with manuals, were scattered around the area mixed with more common garbage folks haul away." (DM, NSW) "Latest shipment of PSI dishes (a container) in hand - 8 and 10 footers now available again in quantity." (P. Merrett, Sciteq, WA) "Regarding those receivers (currently available in Thailand) which have software allowing the user to monthly enter new (RCU) codes to access various version-1 CA services. I believe the manufacturers sell the receivers to dealers and then hand them ('wink-wink') a software disc allowing the dealer to 'upgrade' the receiver before (retail) sale to the customer. In that way, the dealers make the decision (and commit the act) to change the receivers to models that will access without cards or payment the various services involved. I watched Dr Dish try to explain this on his TV program and had to laugh - he was explaining a new Hyundai model available through Mediacom in Dubai and said something like this: 'I inadvertently inserted an expired subscriber card into this receiver and to my total astonishment and without explanation it opened a number of encrypted channels.' I think we all know that Dr Dish would be well aware of why the channels opened. Most of these receivers do not explain this in their written manuals - press the mute button and then enter a 'special' code accessed from the web." (M, Bangkok) (Editor's note: The status, legal or otherwise, of locally administered entry code receivers seems unclear.) "The United States and Australia under a new Free-Trade Agreement have amended

definitions and penalties for the 'unlawful decoding of encrypted satellite TV signals. The original text can be read at http://www.dfat.gov.au/trade/negotiations/us_fta/outcomes/O8_intellectual_prope." (RD, RSA) "Numbers recently reported: Foxtel has 1,070,000 homes (cable and satellite) while Austar (primarily satellite except for some cable in NT) 427,000 homes." (David, NSW) (Editor's note: Foxtel expects the average consumer spend per month will rise of A\$84 by 2010 [\$1008 per year] with 3 million subscription homes.) "Irdeto will be showing a new ICOB (Irdeto Chip On Board) system at the NAB convention in Las Vegas. It works this way - when a CI-CAM is purchased, the device has an 'auto expiring' card included. The user gains temporary access to a specific service or package of services, as a 'teaser,' which allows the programmer to solicit subscriptions by exposing the services without involving an actual smart card addressing system." (Taylor H, USA). "The US government has closed down an investigation begun 18 months ago of NDS and its American subsidiary. Competitors, including Nagravision, had charged NDS with encouraging piracy theft of services (such as Nagravision) by reverse engineering competitive products and distributing hacking instructions through piracy web sites. The US government says it can find no basis for continuing the investigations." (Larry T, USA) "LG Electronics (Korea) has introduced a combination satellite receiver (32 satellite capacity, 4,000 channel memory) and VHS tape recorder using an integrated timer selection pilot allowing advance settings for reception or

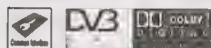
KRISTAL
electronics
ABN 78010884938

25 Cataract Ave Rangewood
Townsville, Queensland 4817

Phone: (07) 47888902 Fax: (07) 47888906
eMail: philip@kristal.com.au
Web: <http://www.kristal.com.au>

SATELLITE

e■Tech eM200



Digital Satellite Receiver with 2 x CI slots.
with Irdeto 2.09 CI cam.

e■Tech eM320PVR



Satellite Receiver with Dual Tuner, firewire,
and 44 hours recording with Irdeto 2.09 CI cam.

e■Tech eM300PVR

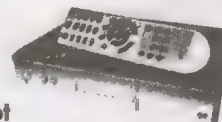


Digital Satellite Receiver with CI slots &
22 hours recording with Irdeto 2.09 CI cam.

e■Tech IrdetoAccess



Compact embedded Irdeto
Satellite receiver with 1 card slot



All the above receivers are suitable for receiving the Irdeto encrypted KU
programming from **NSS6 satellite** with the appropriate authorized smart card.

TERRESTRIAL

Hauppauge Nova-T

Terrestrial PCI Card

With the Hauppauge Nova-T
Terrestrial PCI card you can watch
and record SD and HD television onto your computer.
With infra red receiver and remote control.



OPENTEL
ODT3000F

Digital terrestrial receiver.
Standard definition, high quality.
Full features, RF modulator, S-Video out, Wide button,
Competitive pricing. Call for wholesale bulk pricing.



recording (unattended) of a particular satellite or programming service. The DSR/VCR LSV700W is now on initial sale in the Middle East." (Shannon, Taiwan)

Optus B3 update - continued from p. 22

February 15: T8 (12.720V, 30.000, 2/3) channel labelled Daystar no longer running on "Al Manar."

February 16: T8 (12.720V) was off totally this date.

February 17: T5 (12.525V, 30.000, 2/3) Sigaram Tamil TV was FTA, as well as frequently in week following. When FTA, Irdeto-2 had been completely removed from this transponder. T8 (12.720V, 30.000, 2/3) running again; no CAT, NIT, PAT. Using original PIDs, some of original channels are there but pixelating badly.

February 18: T12 (12.501H, 30.800, 2/3) running National B beam (previously tested in High Performance beam). GlobeCast, however, using incorrect NIT (12.500V, 30.800, 3/4). PAT loads 12 channels (8TV, 4 radio) but there are complications: GlobeCast using extra sound channels for radio, plus dual radio ch soundtracks for two separate radio services (different radio stations on right and left). **TV:** (1) Daystar/V5153, A5154; (2) TRT (two soundtracks V257, A258 + A259 [not in use]; (3) SET/V1260, A1220 with left ch TV audio,

right channel ad breaks; (4) TCT (religion USA; V513, A514; (5) GOD TV/V769, A770; (6) 3ABN/V2049, A2050; (7) Thai TV Intl (airing TGN) /V512, A1690 + 2nd soundtrack A701; (8) BVN/RNW3/V5158, A5169 + 2nd audio A5155 (RNW3 radio). **Radio:** (1) TRT FM and RV12 (TRT 4353, RV12 33); (2) VOT and Overcomer Radio (3 radio stations here: first 4609 left, second 4609 right, Overcomer 7202); (3) RNW1&2 (RNW1 5156, RNW2 5157; (4) Bangkok FM94/A651. T8 (12.720V, 30.000, 2/3) no longer in use by GlobeCast, now Optus is loading familiar looking feed MCPC. 5 chs load as TV but in fact last 3 are only radio; all FTA at this point: (1) WINTV WA/V1536, A1537, P1536; (2) ABC_NT_RABS/V832, A833, P832; (3) ABC_NT_FM/ A836, P836; (4) ABC_NT_RN/ A838, P838; (5) ABC_NT_RR/ A837, P837.

February 19: T5 (12.525V, 30.000, 2/3) Daystar USA religious now on this MCPC V5169, A5170, P5169. T12 (12.503H, 30.800, 3/4) Daystar here has changed PIDs to confirm to T5 (V5169, A5170, P5169).

February 25: T7 (12.657V, 30.000, 2/3) GlobeCast has added "Vietnamese Radio" with APID 1223, PCR 1223. However, the sounds are not Vietnam unless this is their international short-wave service which does through various day parts use languages of their "target areas" (such as Middle Eastern, Northern European and so on).

March 2: T8 (12.720V, 30.000, 2/3) is shut down once again.

March 3: T5 (12.525V, 30.000, 2/3; GlobeCast) - channel labelled "EWTN" is gone this date.

Prognostication: When Optus C1, transponder T1 shut down (February 25), this became the only transponder of the Australia boresighted 20 that was not in use. This leaves only Optus C1, T3 (12.407V, 30.000, 2/3) that is currently on the ANZ (Australia + New Zealand) beam. This suggests Optus may be planning to shift the Aurora group of services to the double-wide T1 transponder, running as a double MCPC.

SatFACTS for Australians???

Prompt delivery PLUS bonus material
exclusively from us!

AV-COMM PTY LTD

email cgarry@avcomm.com.au
telephone (02) 9939 4377

Hualin Pty Ltd

Satellite Equipment Specialists
Import and wholesale

Unit 51/159 Arthur ST Homebush West, Sydney Australia 2140

Phone: (02) 9763-1366

Fax: (02) 9763-1356

Email: hualin@optushome.com.au

Web: www.hualin.com.au

ALL PRICES EXCLUDE GST, THIS MONTH SPECIALS!

Arion 1200 (PRICE DROP)



- Free to air
- Fast processing
- User friendly
- Slick design
- **\$200 AUD**

Success 5860 (PRICE DROP)



- Fast process
- **EXTREMELY** User friendly
- **All the functions** you can possibly want in a FTA receiver
- **\$160 AUD**

Supernet (SPECIAL)



- IRDETO 2.09 Embedded
- Symbol Rate Range from 2 - 45
- Suitable for LBC/ AURORA
- Autoscanner Function (Unique to this receiver)
- **\$250 AUD**

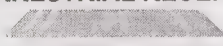
Dion CI + CAM (PRICE DROP)



- With Cam IRDETO 2.06B
- Nice interface design
- 2 CI slots
- User Friendly
- Symbol Rate from 2 - 45
- **\$370 AUD**

Supernet

TERRESTRIAL RECEIVER



(NEW)
DVB-T

- VERY easy to use, **Specially designed for housewives**
- EPG for up to 64 DAYS!
- Teletext function
- RCA/S-VIDEO/RGB/SCART Outputs
- 16x9 and 4x3 widescreen
- **\$210 AUD**

Accessories

2.4G AV sender - \$120 AUD **Special**
LNB CBand Zinwell - \$40
LNB CBand 1 Cable solution - \$70
LNB KU - \$35
LNB KU Twin output - \$75 **SPECIAL**
Actuator SuperJack 18" - \$50
Actuator SuperJack 24" - \$55
Positioner EZ2000 - \$60 **SPECIAL!!!**
Positioner SAP2200 - \$85
Positioner VBox Diseq 1.2 - \$70
Cable RG6 Dual Shield - \$70/305m
Cable RG6 Quad Shield - \$80/305m
Actuator Cable CAT5 - \$80/305m

Solid/Mesh Dish

0.45 m
0.6 m
0.65 m
0.8 m
0.9 m
1.2 m
1.8 m

From \$25 -
\$200 AUD

2.13m
2.3m
3.07m
Light Duty
Medium Duty
Heavy duty
available

From \$130 -
\$550 AUD

IRDETO 2.06B CAM (PRICE DROP)



Price: \$160
We import this
product

Suitable for all channels from Optus B3

Banking Details

ANZ Bank
Branch 012432
Account 3474 57536

AT

Sign-off

GlobeCast to the rescue!

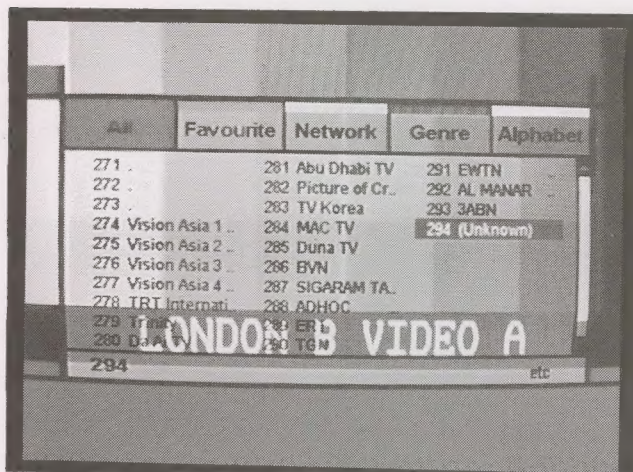
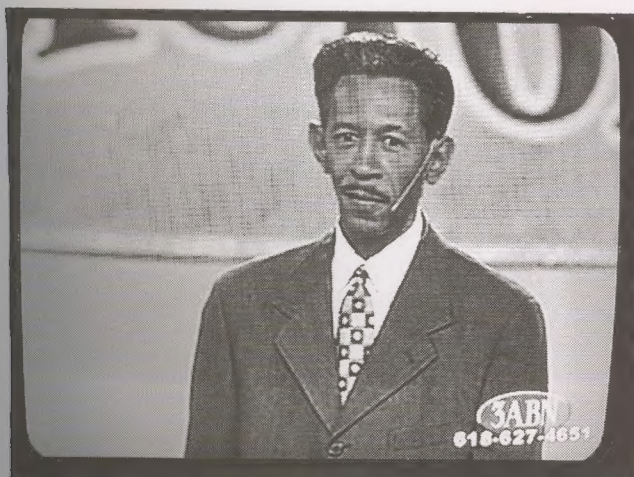
French TeleCom owned and operated GlobeCast is a world-circling satellite linking firm that is rapidly becoming the number one one-stop source for ethnic and religious programming planet wide. Their influence in Australia and New Zealand, especially since C1 replaced B3 allowing B3 to move off (to 152E) and become its own centre of programming, has grown substantially. And this translates to more families accessing free-to-air satellite programming which, for our FTA world, is welcome news.

Because GlobeCast operates their own transponders, and as in Sydney their own up-downlink centres, patching a new video channel into a data stream MUX is at their fingertips. This allows them to say to a USA service, such as 3ABN (Three Angeles Broadcasting Network), "Hand us your original feed or allow us to take it off of an existing satellite link and we'll carry it to any portion of the world you wish." They are truly a one-stop shop for world-circling connections.

GlobeCast employs a variety of conditional access stream equipment as well as FTA thereby making it possible for one transponder to mix services independently of what other services in the same MUX are doing or carrying. It is not yet quite a flawproof system (see photo of BVN, p. 27) but for 99% of the time it works very well.

GlobeCast is now exclusively on B3/152E; 3 transponders as of late February although more seem likely, soon. The primary attraction is the variety of free to air ethnic and religion based services, all receivable with a 60-90cm region dish and modest receiver-LNBf combinations. Before GlobeCast, four years back, it took a C-band dish and A\$2,000 to access ethnic programming. With GlobeCast, DIY (do it yourself) folks can manage the entire system for A\$500.

For Australians, there is the added attraction of Aurora based services which although requiring an access card do so only one time - around A\$100. For New Zealanders, no access card required for TV One, TV2 and the new (March 28th official launch) Maori TV service. But perhaps the "hottest" package attracting attention at the moment is a two-channel offering



GlobeCast's rapidly expanding B3 channel loading is creating significant new viewer interest, once reserved for C-band dishes, on Ku.

from a European group featuring significantly-adult 24 hour action, 7 days per week. This is the (NSS-6/As3) Blue Kiss and Blue Kiss Express two channel set which requires a suitable receiver, CAM and a one-time card purchase (no monthly or annual fees once the hardware has been acquired [see p. 2]).

A B3-only 60-90cm dish can be fixed; a B1 + B3 (and/or C1) duo or tri-satellite system requires one dish (reflector) and two (or three as the number of satellites dictates) LNBf devices plus separate feedlines (see SF#114, p. 6 for descriptions of combining two satellites on one feedline). Another alternative is a motorised dish which uses instructions from an appropriate receiver to move the dish through the Clarke Orbit Belt from satellite to satellite. Two sources here - www.satmax.ws has the Moteck SG2100a for offset dishes to 1.2m, while www.adigitallife.com recently announced the Jaeger Superjack Heavy Duty Horizon to Horizon motor mount for dishes (prime or offset) to 2.4m in size. Unfortunately, neither has the right combination of features for 3 or 3.7m C-band dishes horizon to horizon (see p. 6, here) but for Ku band purposes, depending upon dish size, both would be candidates.

The buy-one-time (no monthly/annual fee) approach has been gaining popularity in Europe and the NSS-6/As3 two adult channels now there on this basis may well become models for other unique services in the coming year. Yes there is a fee, but it is an equipment rather than a "service" fee and for many folks, that is acceptable.

What's Available FTA?

Arabic (Al-Manar, Abu-Dhabi), **Chinese/Mandarin** (Da-Ai TV, MAC TV), **Croatian** (HRT Satelitski), **Dutch/Flemish** (BVN), **Greek** (ERT Sat), **Hindi** (SET Asia), **Thai** (Thai TV Global), **Turkish** (TRT International);

USA/English/Religion/Family (3ABN, Daystar, [the] God Channel, [Trinity] TBN, TCT World). Plus - in New Zealand (Norfolk) only: TVOne, TV2, Maori TV; Australia - Optus Aurora service package.

And CA - on same size dish?

Hindi (4 channels), Hungarian, Korean, Tamil

Left: USA origin 3ABN has significant selection of family programming unlike most religion channels.

EVERY REFERENCE WORK YOU COULD POSSIBLY NEED

- from SatFACTS, of course!

Check (✓) off what you wish to order - include your details at bottom.

Fax (++ 64 9 406 1083) or mail (SatFACTS, PO Box 330, Mangonui, Far North, New Zealand)

SatFACTS Subscription

ONE YEAR (12 issues): ☐ Australia and Pacific - A\$96 per year airmail; ☐ New Zealand - NZ\$70 per year, fast post; ☐ Balance of world - US\$75/Euro75 per year airmail.

THREE YEARS (36 issues): ☐ Australia and Pacific - A\$220 airmail; ☐ New Zealand - NZ\$160 fast post; ☐ Balance of world - US/Euro \$175 airmail.

Hard Core (Serious) "How to do it" References

- ☐ Tech Bulletin (TB) 9402: MATV (master antenna terrestrial) systems - wiring up a home, motel, hotel, camp site from one set of antennas - \$15 all regions
- ☐ TB 9404: Home Satellite Dish Systems. "Newbie" trying to work out what all those terms means and how a home system goes together? Perfect. \$15 all regions
- ☐ TB9405: Satellite to Room Systems. Combining MATV (9402) with satellite (9404) to distribute satellite TV reception to multiple outlets - 2 to 1000+! \$15 all regions.
- ☐ TB9301: Terrestrial Antenna Systems to eliminate co-channel interference, stack for additional gain. \$15 all regions.
- ☐ TB9302: (Terrestrial) Weak Signal Reception Techniques; off-air TV reception to 300km+. Seriously detailed. \$15 all regions.
- ☐ TB9303: UHF - Big Antennas for 300km reception over ground! Seriously detailed. \$15 all regions.
- ☐ TB9304: Identifying and eliminating noise interference from fence lines, signs, electrical appliances. How to cleanup marginal TV reception. \$15 all areas.
- ☐ TB9305: Cable TV - the basics. How a cable system works, how you can build one! \$15 all regions.
- ☐ Nelson Parabolic Manual. The "bible" of building your own 13 foot dish from scratch. Serious stuff for dedicated builders. \$15 all regions (supply limited).

SOFT CORE - recent back issues of SatFACTS (while supply lasts)

- ☐ SF#93 (May 2002) - European Piracy, hundreds of piracy web sites - \$10 all regions.
- ☐ SF#96 (August 2002) - Nokia BDM, Faster Channel Zapping with Nokia - \$10 all regions
- ☐ SF#97 (September 2002) - Turning FatCAMs into multiCAMs - \$10 all regions
- ☐ SF#99 (November 2002) FunCARDS - how they work, software mods for Humax - \$10 all regions
- ☐ SF#100 (December 2002) d-box2 BIG report! AC3 Surround Sound for Nokia, PanAmSat's Terrorist Problem - \$10 all regions
- ☐ SF#101 (January 2003) d-box2 conversion to Linux, SA power supplies - \$10 all regions

WHO YOU ARE (where we ship to) - How Much You Are Spending!

My name _____

Company name (if applicable) _____

Ship to address _____

Town/city _____ Postal code _____ State/Province _____ Country _____

☐ Cheque in the amount of \$ _____ (to SatFACTS) enclosed

☐ Charge to my VISA/MASTERCARD (sorry - no others) as follows: (03/04:#102)

\$ _____ - _____ - _____ expires ____/____

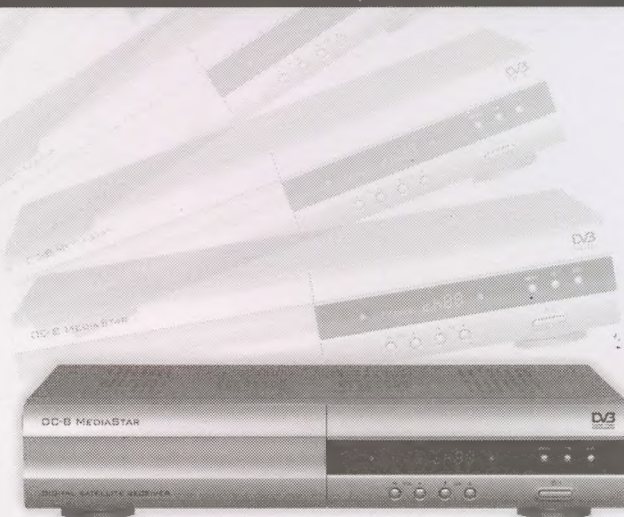
Name as appears on card _____

Fax to ++ 64 9 406 1083 or mail to SatFACTS, PO Box 330, Mangonui, Far North, New Zealand

THE DC-8 HAS LANDED



- 2 Slot common interface for Irdeto, Seca, Viaccess
- Symbol rate 2-45 MBPS
- Digital Audio AC-3 support by SPDIF
- S-Video output
- Close Caption subtitle and Teletex
- DiSEqC 1.0 and 1.2
- NTSC-PAL auto converting
- DSR to DSR copy



MediaStar
Communications
International
24 Bosci Road
Ingleburn NSW
2565 Australia

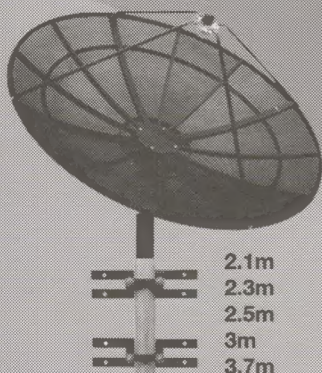
Tel: 02 9618 5777

Fax: 02 9618 5077

Opac@bigpond.com.au

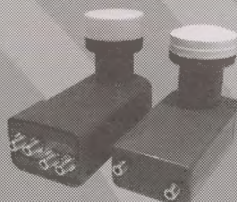


MediaStar
High Performance



**Heavy Duty Frame
Stronger Mesh**

2.1m
2.3m
2.5m
3m
3.7m



**11300 MHz L/O
Dual and Quad Output**



**Mustang Actuators
18", 24", 36", 56"**



Aston Cams



**EZ2000+
Positioner**



Making communications shine. MediaStar

Web: www.sciteq.com.au
Email: sales@sciteq.com.au

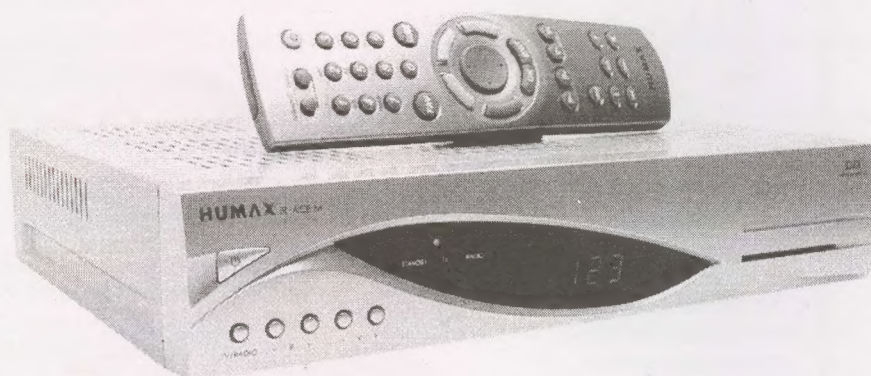
Ph: +61 8 9409 6677
Fax: +61 8 93095210

SCITEQ

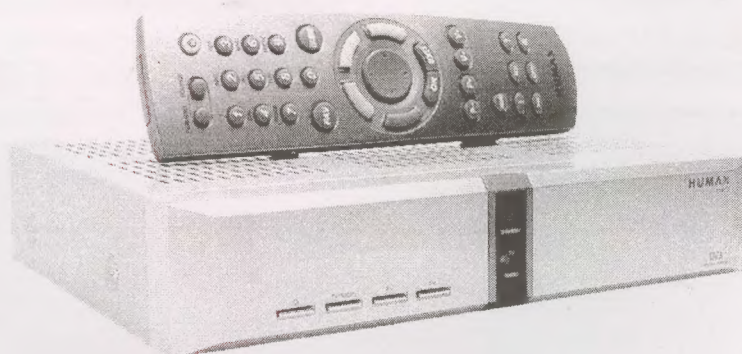
Pty Ltd ABN 34 009 235 090

HUMAX

Embedded Irdeto Digital Satellite Receivers



Humax IR-ACE M Stock No. 101007



Humax IR-ACE S Stock No. 101008

Features & Functions

- Software upgradable from home PC
- Australian specific software
- 1 - 45 Msym Symbol Rate
- DiSEqC 1.0 switching
- DiSEqC 1.2 positioning
- 22kHz Switching
- 4:3 or 16:9 aspect ratio
- Embedded IRDETO (compatible Euro I IRDETO 1 & 2 services)
- SCPC & MCPC from C / Ku Band
- User Friendly OSD
- Supports DVB Subtitling & DVB Teletext
- Electronic Programme Guide

Compatible with

FREE-X TV

Starting February 2004 from NSS-6 95.0°E - Ku-Band